

## Ohio Invasive Plant Assessment Protocol

Botanical Name: *Lonicera japonica*  
 Common Name: Japanese honeysuckle  
 Family Name: Caprifoliaceae  
 Assessment conducted by: OIPC Team

Step I Outcome: **Invasive**  
 Step II Score: **49**  
 Step II Outcome: **Invasive**

**Score**

**Notes**

**References**

**Step I**

*Directions: Place an "X" in the Score column next to the selected answer to each of the four questions.*

**1. Is this plant known to occur in the state and listed as "noxious" on any federal or Ohio Department of Agriculture plant list?** Yes. Place on invasive plant list, no further investigation needed. **STOP**  
 No. Continue on to question 2.

X

**2. Has this plant demonstrated widespread dispersion and establishment (i.e. high numbers of individuals forming dense stands) in natural areas across two or more regions in Ohio?<sup>a</sup>** Yes. Place on invasive plant list, no further investigation needed. **STOP**  
 No. Continue on to question 3.

X

Species has been detected in natural areas in all 5 regions, but the numbers of individuals in the populations is not stated.

1,2

**3. Does this plant form self-replicating populations outside of cultivation in Ohio and is it documented to alter the composition, structure, or normal processes or functions of a natural ecosystem?** Yes  
 No  
 Unknown

x

Present in natural areas in all 5 regions. It has been shown to alter plant community composition by reducing species diversity, especially in the understory community.

1,2,6,8,9

**4. Is the plant listed as invasive in an adjoining state or a nearby state east of the Mississippi within the USDA Plant Hardiness zones 5-6?<sup>b,c</sup>** Yes  
 No  
 Unknown

x

MI, PA [also KY, but not included here]

3,4,5,12

*If the answer was yes for both questions 3 and 4, the plant is placed on the invasive plant list and no further research is needed. Stop here. If the answer is no for both questions 3 and 4, the plant is not considered invasive and no further investigation is warranted. Otherwise, proceed to Step II.*

### Step II: Invasion Status

*Directions: Place the appropriate numerical score (or "U") in the Score column next to the selected answer to each of these 18 questions.*

**1. Current Invasion in Ohio**

- plant is not found in natural areas (0 pts.)
- plant is found in natural areas but only because it persist from previous planting in that location (e.g. old home sites) (0 pts.)
- plant is only expanding from sites of previous planting (1 pt.)
- plant occurs in natural areas away from site of planting (3 pts.)
- Information unknown (U)

3

1,2,13

**2. State Distribution<sup>a</sup>**

- plant is not naturalized in any region of Ohio (0 pts.)
- plant is naturalized in only one region in Ohio (1 pt.)
- plant is naturalized in two regions in Ohio (2 pts.)
- plant is naturalized in three regions in Ohio (3 pts.)

5

Regions 1,2,3,4,5

1,2

- plant is naturalized in four regions in Ohio (4 pts.)
- plant is naturalized in five regions in Ohio (5 pts.)
- Information unknown (U)

### 3. Regional/US Distribution

- plant is not considered to be a problem in any other state (0 pts.)
- plant has been reported as a widespread problem in another non-neighboring state within the USDA Plant Hardiness Zones 5-6 (1 pt.)
- plant has been reported to be a widespread problem in 1-2 adjoining states (3 pts.)
- plant has been reported to be a widespread problem in 3 or more adjoining states (5 pts.)
- plant has been reported to be a widespread problem in similar habitat outside the US (1 pt.)
- Information unknown (U)

3

MI, PA [also KY, but not included here]

3,4,5,12

## Step II: Biological Characters

### 4. Vegetative Reproduction

- no vegetative reproduction (0 pts.)
- reproduces readily within the original site (1 pt.)
- has runners or spreading rhizomes that root easily (3 pts.)
- fragments easily and fragments can be easily dispersed (4 pts.)
- has runners or spreading rhizomes that root easily AND fragments easily and fragments can be easily dispersed (5 pts.)
- Information unknown (U)

3

19=> "plants can send out shoots at any node and root at any node in contact with the ground, thus allowing for clonal spread. This rapid spread allows L. japonica to quickly fill available space, and plants may grow in high-density, nearly monospecific stands." and also sends out runners. 22=> "a long-lived clonal species that spreads locally through vegetative propagation, and geographically through seed dispersal by birds and other animals in addition to horticultural use (Schierenbeck 2004)." 8=> "In areas where temperatures are not suitable for seed stratification, it will spread via vegetative propagation (Leatherman, 1955)."

7,8,9,11,19,22

### 5. Sexual Reproduction

- no sexual reproduction (0 pts.)
- infrequent sexual reproduction (1 pt.)
- frequent sexual reproduction, but high variation among years in seed production (3 pts.)
- frequent sexual reproduction (one or more events per year) (5 pts.)
- Information unknown (U)

3

Fertility is reduced b/c self-incompatible, and needs pollinators to disperse pollen, but its flowering period is very long. 22=> "has sporophytic self-incompatibility, so several genotypes must establish in invaded areas before sexual reproduction can occur and generate seeds for dispersal and potential further spread (Schierenbeck 2004)."

7,9,11,22

### 6. Number of Viable Seeds or Propagules per Plant

- few (0-10) (1 pt.)
- moderate (11-1,000) (3 pts.)

Seed set is highly variable depending on light

- prolific (>1,000) (5 pts.)

- Information unknown (U)

#### 7. Flowering Period

- one month or less per year (0 pts.)
- two months (1 pt.)
- three to five months (2 pts.)
- longer than five months (3 pts.)

- Information unknown (U)

#### 8. Dispersal Ability

- low potential for long-distance seed/propagule dispersal (>1km) (0 pts.)
- medium potential for long-distance seed/propagule dispersal (3 pts.)
- high potential for long-distance seed/propagule dispersal (5 pts.)

- Information unknown (U)

#### 9. Generation Time

- long juvenile period (>5 or more years for trees, 3 or more years for other growth forms) (0 pts.)
- short juvenile period (<5 years for trees, <3 years for other forms) (3 pts.)

- Information unknown (U)

#### 10. Establishment

- unable to invade natural areas (0 pts.)

3

conditions, age, and size (to name a few). It is unclear how many seeds can be produced, but we know in some areas, the species is a prolific seed producers (many, many more than 11 seeds/plant/year), and in others, it is limited by self-incompatibility. 25=> "sexual reproduction in populations of L. japonica along the western edge of its naturalized range [in AR] is limited by a lack of pollination." and "Average primary shoot fruit set....was only 13.64.1%, significantly less than the average for secondary shoots of 23.66.7%." 8=> "Seed set in Japanese honeysuckle is limited by obligate outcrossing."

7,8,9,25

2

7=>at least 3 months. 8=>ideal conditions allow for 8 months of flowering. 9=>3-7 months, depending on location. [The answer for this question was chosen to be a conservative balance between refs 7, 8 and 9.]

7,8,9

5

bird, deer, small mammals, humans. 8=> "performed by a wide range of birds (e.g., silvereyes, song thrushes, blackbirds, turkeys, and passerines) and mammals (e.g., brushtail possums, rodents, and ungulates."

6,8,9

3

8=> "Flowering in Japanese honeysuckle has been observed to begin within a year after germination (K. Schierenbeck, personal observation), but most flowering begins in the second year (Leatherman, 1955)."

8

14=>"L. japonica occupied an average of 25.9% of

## Step II

- can only colonize certain habitat stages (e.g. early successional habitats) (1 pt.)
- aggressively colonizes and establishes in edge habitats (3 pts.)
- aggressively colonizes and establishes in intact and healthy natural areas (6 pts.)
- Information unknown (U)

### Step II: Ecological Importance

#### 11. Impact on Ecosystem Processes

- no known effect on ecosystem-level processes (0 pts.)

6

14=> L. japonica occupied an average of 23.3% of all edge types, highest in the Piedmont but fairly evenly distributed on edge types." 15=> initially, invasive vines grew faster than native vines but eventually they were similar. 16=> environmental niche modeling indicates that species will continue to spread across the US. 17=> Japanese honeysuckle and Japanese stiltgrass compete asymmetrically for resources, particularly light. 21=>in IL: "Lonicera japonica....was absent when canopy openness was < 15%". 22=> "Larger size of individuals from margin populations suggests either that the shorter growing period at the northern margin has selected for more rapid growth or that range expansion has selected for plants with a greater colonizing ability, including rapid establishment and growth." 27=> Jap. honeysuckle has nearly reached the extent of its predicted range, but that will likely change with global climate changes, species is associated with disturbed forests and habitat fragmentation. 8=> "Its distribution appears to be limited only by drought, temperatures required for seed stratification, and heavy frost." and "Without support in open fields, Japanese honeysuckle will form mats up to 1.5 m deep with 100% cover (Hardt, 1986). New ramets will establish via stems that come in contact with the ground and root adventitiously." 30=> in the southern IL shale barrens, "growth [of Jap. honeysuckle] was related to soil and light conditions, and aspects of surrounding cover."

,11,13,14,15,16,17,21,2

Reduces species diversity through out competing understory plants - this includes seedlings of important timber trees. 19=> "Enhanced intraspecific

- moderate effects on ecosystem-level processes (e.g., changes in nutrient cycling)(3 pts.)

- causes long-term, substantial alterations in the ecosystem (e.g., changing fire regime of an area, changing hydrology of wetlands) (6 pts.)

**12. Impact on Rare Organisms**

- no known negative impact on Ohio State-listed or federal-listed plants or animals (0 pts.)

- negatively impacts listed species, such as through displacement or interbreeding (3 pts.)

**13. Impact on Native Animals**

- no known negative impact on animals (0 pts.)

- documented direct or indirect negative effects on animal taxa (3 pts.)

**14. Impact on Native Plants**

- no known negative effects on native plants (0 pts.)

- negatively impacts some native plants (increasing their mortality and/or recruitment of certain taxa) (3 pts.)

3

competitive ability of plants from low-density margin populations [compared to the central core populations in the middle of the range] is likely driven by selection for more rapid growth rate in the north." 31=> "Over time, species richness declined with increasing L. japonica cover. L. japonica reduced local colonization rates but had no effect on extinction rates. Furthermore, we detected significant reductions in the immigration of individual species as invasion severity increased, showing that some species are more susceptible to invasion than others. These findings suggest that declines in species richness associated with L. japonica invasion resulted from effects on local colonization rates only and not through the competitive displacement of established species."

6,8,9,11,13,29,31

0

8=> "it is threatening populations of the endangered and endemic na'ena'e (Dubautia latifolia) in Hawai'i." [but not considered here as it does not pertain to Ohio]

8

0

No negative impacts of avian nesting success in Japanese honeysuckle.

28

Reduces species diversity through out competing understory plants - this includes seedlings of important timber trees. 18=> "Leaf nitrogen concentration of trees...was significantly reduced by belowground competition with L. japonica."

- impacts native plants to such an extent that community structure is greatly altered (6 pts.)

#### 15. Hybridization

- no known instances of hybridization with other plant species (0 pts.)
- can hybridize with native Ohio plants or commercially-available species, but seeds are inviable (1 pt.)
- can hybridize with native Ohio plants or commercially-available species, producing viable seed (3 pts.)

#### 16. Population Density

- occurs only as small, sporadic populations or individuals (1 pt.)
- typically forms small, monospecific patches (3 pts.)
- is a dominant plant in area where population occurs (absolute cover 15-50%) (4 pts.)
- forms an extensive, monospecific stand (absolute cover >50%) (5 pts.)

#### 17. Role in Succession in Natural Areas

- successional information is unknown (0 pts.)
- is an early successional species that temporarily invades a disturbed site but does not persist as the site matures (0 pts.)

- readily invades disturbed sites and persists, but does not interfere with succession (1 pt.)

- readily invades disturbed sites, persists and interferes with succession of native plants (4 pts.)

24=> has potential for allelopathy and "exhibited induction of increased allelopathic potential in shaded environments". 26=> no detectable negative effect of Jap. honeysuckle on Trillium growth. 27=> can suppress growth of economically important Pinus seedlings. BUT SEE 29=> in MS: "much of the negative correlation between native species diversity and this invasive species was explained by soil texture and local and landscape-level land-use practices."

3

0

No evidence

3

[This is considered a conservative answer. It is anecdotally known that it does form large monotypic populations.] 20=> nearly monospecific stands, with 3.2% cover in one documented Ohio site.

6,8,9,11,13,20

1

There is not enough data available to determine if the species interferes with succession. It is known that the species can invade a range of successional forests (early to late) and that it can reduce species diversity. [With more research, this answer may change to the 4 point answer.] 17=>"can overtop small trees and shrubs impacting early successional and forest understory communities." 23=> Jap. honeysuckle is an early successional liana which colonizes early successional trees. 8=> "In areas of fire suppression, Japanese honeysuckle competes effectively for light gaps, establishes below-ground biomass, and consequently is hypothesized to promote the growth of other shade-tolerant species (Richburg et al., 2002)."

6,8,9,17,23

**18. Number of Habitats Invaded**

**Forestlands:** Floodplain forest, hemlock-hardwood forest, mixed mesophytic forest, beech-maple forest, oak-maple forest, oak-hickory forest.

**Grasslands:** Alvar\*, beach-dune community\*, bur oak savanna\*, slough-grass-bluejoint prairie\*, sand barren\*, big bluestem prairie, little bluestem prairie

**Wetlands:** Bog\*, fen\*, twigrush-wiregrass wet prairie\*, marsh, buttonbush swamp, mixed shrub swamp, hemlock-hardwood swamp\*, maple-ash-oak swamp,

\* Considered a rare plant community in Ohio by ODW's Biodiversity Database Program.

† = xeric limestone prairies or cedar glades and post oak openings are unique to the Interior Low Plateau Region of Adams, Highland and Pike Counties, and are not included in Schneider and Cochrane (1997)

- not found in any natural habitats in Ohio (**0 pts.**)
- only found in 1 broad category (**1 pt.**)
- found in 2 broad categories or 2 rare habitat types (**3 pts.**)
- found in 3 broad categories or 3 rare habitat types (**4 pts.**)
  
- found in 4 or more rare habitat types (**5 pts.**)

3

Found in many types of forests and prairies. 19=> in forests (especially after ash trees succumb to Emerald Ash Borer). 14=> in NC: "L. japonica occupied an average of 25.9% of all edge types, highest in the piedmont but fairly evenly distributed on edge types."

8,9,14,20

**Total Score:**

49

**Number of Unknowns:**

0

**Outcome:**

Invasive

Total Points	Assessment Decision
4 or more U	Insufficient Data
0-34	Not Known to be Invasive
35-44	Pending Further Review
45-80	Invasive