

Ohio Invasive Plant Assessment Protocol

Botanical Name: *Persicaria perfoliata*
 Common Name: Mile-a-minute weed
 Family Name: Polygonaceae
 Assessment conducted by: OIPC Team

Step I Outcome: **Invasive**
 Step II Score: **43**
 Step II Outcome: **Pending Further Review**

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?^a
 Yes. Place on invasive plant list, no further investigation needed. **STOP**
 No. Continue on to question 3.

X

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

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?^{b,c}
 Yes
 No
 Unknown

x

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

Species is not cultivated. It's occurrence is not considered a result of escaped planting.

2,7

2. State Distribution^a

- 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.**)

2

2=> species is in two regions (3 &4), but A. Mastalerz (unpubl. data) has observed it in region E. [More accurate and up to date data collection]

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)

5. [more accurate and up-to-date data collection will probably increase this score to at least 3.]

3

IN, PA [also in KY but not included here]

3,4,6,7

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)

0

9,10

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

10=>Produces seed but with some variation among years. 11,14=> a self-fertilizing annual with some out-crossing.

10,11,14

6. Number of Viable Seeds or Propagules per Plant

- few (0-10) (1 pt.)
- moderate (11-1,000) (3 pts.)
- prolific (>1,000) (5 pts.)

3

10=>Seed set has been documented as little as 7 seeds/plant/year to 3,500seeds/plants/year. 8=>each fruit contains a single seed. 11=>invasive populations flowered earlier and had higher seed output than plants from the native range. 14=> "edges. Several workers have indicated that mile-a-minute is a prolific seed producer, but few data have actually been published to support this claim. In one report, McCormick and Johnson (1997) stated that a single plant could produce at least 50 to 100 seeds." 15=>produces numerous fruits but

7,8,10,11,14,15,16

Step II

- 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.)
- 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.)
- 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

actual seed production unknown [in 1996].
16=>"From 3 [seeds] per plant to about 1200 at one time; total throughout the season must usually be rather greater."

1

8=>begins flowering June or July, fruits by August.

8,10,16

5

Dispersed by birds, humans, deer and water. Seeds can remain buoyant for 7 days. 8=> seeds dispersed by deer. 13=>spread by birds, deer, and water. 14=>also ants for short-distance dispersal. 16=>all of the above, including water.

7,8,10,13,14,16

3

Species is an annual

8,10

3

8=>seeds remain viable in ground for 6 years. 12=>species grows more vigorously in sun than in shade. 13=>plant grows 6m/year, seeds remain viable for 3-7 yrs.

7,8,10,12,13

3

7=>"The impacts of P. perfoliata include the inhibition of reforestation and natural forest regeneration by smothering tree seedlings, interference with recreational use of natural areas, reduction in quality wildlife habitat, and likely negative effects on native flora."

7,9,10

- 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.)

0 no evidence

13. Impact on Native Animals

- no known negative impact on animals (0 pts.)
- documented direct or indirect negative effects on animal taxa (3 pts.)

0 no evidence

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

Species smothers native vegetation, including tree saplings. 15=>"Native taxa such as elderberry (Sambucus canadensis L.) and brambles (Rubus spp.) are overgrown and killed (Moul 1948)."

8,10,15

- 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.)

0 no evidence

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.)

4

8=>Species can form monocultures at high densities. 7=>"seedling densities averaging as high as 200-500 per 0.5 m2 in the introduced range".

7,8,10

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.)

4

Where the species forms dense mats, successional trajectories can be altered because of the changes in plant diversity and abundances. It is important to note that the species ability to form mats varies with location, so successional changes will vary with location. 13=>frequently interferes with forest regeneration. 14=>"Mile-a-minute is a major threat to forest regeneration and commercial forest areas." and then gives examples in other states. 15=> thrives when forest is clear-cut.

7,8,10,13,14,15,16

- 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.)

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

10=>Woodlands and grasslands; 12=>"grows in full sun or partial shade, with typical habitats including roadsides, edges of woods, reforestation clearcuts and stream banks". 14=>"along roadsides, edges of woods and thickets, railroads, nurseries, recently harvested forest sites, forest edges, utility rights-of-way, low meadows and stream banks, wetlands, and uncultivated open fields."

10,12,14,15,16

Total Score:

43

Number of Unknowns:

0

Outcome:

Pending Further Review

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