

## Ohio Invasive Plant Assessment Protocol

Botanical Name: *Hesperis matronalis*  
 Common Name: Dame's rocket  
 Family Name: Brassicaceae  
 Posted Date: 7/20/16  
 Initial assessment conducted by: Allison Mastalerz

Step I Outcome: **Continue**  
 Step II Score: **45**  
 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.*

<b>1. Is this plant known to occur in the state and listed as "noxious" on any federal or Ohio Department of Agriculture plant list?</b>	Yes. <i>Place on invasive plant list, no further investigation needed.</i> <b>STOP</b>			
	No. <i>Continue on to question 2.</i>	X		
	Yes. <i>Place on invasive plant list, no further investigation needed.</i> <b>STOP</b>			
	No. <i>Continue on to question 3.</i>	X		
<b>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?</b>	Yes		Species occurs in all 5 regions but information regarding individual populations is lacking.	1
	No. <i>Continue on to question 3.</i>	X		
	Unknown			
<b>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?</b>	Yes			
	No			
	Unknown	X		
<b>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></b>	Yes	X	PA, IN, MI, WV, CT, MA	1,2,3,4,5,6
	No			
	Unknown			

*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.*

<b>1. Current Invasion in Ohio</b>	- plant is not found in natural areas (0 pts.)	3	Expansion from old home sites is certainly a factor in the current invasion of species, but species is now found in natural areas away from site of planting.	10, 11
	- 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)				
<b>2. State Distribution<sup>a</sup></b>	- plant is not naturalized in any region of Ohio (0 pts.)	5		1
	- 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.)			
	- plant is naturalized in four regions in Ohio (4 pts.)			
	- plant is naturalized in five regions in Ohio (5 pts.)			
- Information unknown (U)				
<b>3. Regional/US Distribution</b>	- plant is not considered to be a problem in any other state (0 pts.)	5	PA, IN, MI, WV, CT, MA	1,2,3,4,5,6
	- 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.)			

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### 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

11

#### 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

9: Seeds retain up to 94% viability after being stored for 1 year. 10: Seed production and viability vary widely due to differing environmental conditions. 15: Species flowers to attract a variety of pollinators (both with floral color and odor); plants emitting more scent had higher fitness.

9,10,14,15

#### 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.)
- Information unknown (U)

5

10: >5,000. 11: >20000 seeds per year. 13: "produce hundreds of seeds per plant"

10, 11,13

#### 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)

0

7: mid-May to mid-June. 14: Blooms in IN starting in late May.

7,14

#### 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)

3

Eaten and dispersed by ground-foraging birds. Also can be transported via hikers' shoes. 11:"still widely marketed as a garden ornamental in Canada and the United States....and is sold in wild plant mixes for gardens or roadside beautification schemes.

11

#### 9. Generation Time

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

Biennial or short-lived perennial

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### Step II

- short juvenile period (<5 years for trees, <3 years for other forms) (3 pts.)
- Information unknown (U)

3

Biennial, or short-lived perennial.  
 14: Species is a biennial that can sometimes survive a second winter as a short-lived annual.

8,9,11,14

**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)

6

11: "In Ontario, *H. matronalis* dominates open forest understorey and meadows, and is ranked among invasive exotic species "that can dominate a site to exclude all other species and remain dominant on a site indefinitely"

8, 10,11

**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.)

0

Information is lacking.

**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.)

0

**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

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

3

8,9: Species can out-compete native species in high- and low-light habitats. 10: removal of these species leads to increased cover of *Rosa multiflora* and *Euonymus alatus*. 13: Species demonstrated a clear negative effect on native plant species. 14: in competition with garlic mustard, dames rocket is not outcompeted.

8,9,10,12,13,14

**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

11

**16. Population Density**

- occurs only as small, sporadic populations or individuals (1 pt.)
- typically forms small, monospecific patches (3 pts.)

4

Can form large and continuous

7 9 11

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- 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.)

patches with many hundred plants.

7,9,11

**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.)

4

8: Suggests the specie's ability to persist and out-compete native species in closed canopy forest habitats could lead to a change in local successional trajectories.

8,11

**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 (xeric limestone prairie\*+), post oak opening\*+

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

1

9,11: Can form monotypic stands in meadows, orchards, forest edges, bottomland woods, stream banks, riparian or wetland habitats, open woods. 14: is most common in open woods, mesic bottomlands, and roadsides.

9,11,14

45

0

**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