

Ohio Invasive Plant Assessment Protocol

Botanical Name:	Rubus phoenicolasius	Step I Outcome:	Continue		
Common Name:	Wine raspberry, Wineberry, Japanese wineberry	Step II Score:	36	Score	Notes
Family Name:	Rosaceae	Step II Outcome:	Pending Further Review		References
Posted Date:	7/20/16				
Initial assessment conducted by	Ilana and Yulia Vinnik				

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

Step I	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	X			
		No		Prohibited in NY, MA, Conn	10,11,12	
		Unknown				
	<i>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.</i>					

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.

Step II	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.)		3		2,3,1
	- plant occurs in natural areas away from site of planting (3 pts.)				
	- Information unknown (U)				
	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.)		3	Regions 3,4,5	2,3,1
	- 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.)		5	10,11,12: NY, MA, Conn. 1-6: It is considered invasive in Connecticut, Maryland, Tennessee, Virginia, North Carolina, West Virginia, and the District of Columbia. Also, it is banned Connecticut and prohibited in Massachusetts.	1,2,3,4,5,6,10,11,12	
- plant has been reported to be a widespread problem in similar habitat outside the US (1 pt.)					
- Information unknown (U)					

Step II: Biological Characters

4. Vegetative Reproduction

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	Score	Notes	References
<ul style="list-style-type: none"> - 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	<p>7: "able to reproduce clonally through underground rhizomes". 8: "Seeds germinate in the spring and seedlings have a single stem. One-year-old plants either show continued growth of this stem or produce a new stem. Older plants produce stems that live for 2 years; in the first year they are unbranched 'primocanes'; in the second year they are woody 'floricanes' that produce branches and potentially flowers and fruits, but do not have extension growth".</p>	4,7,8,14
<p>5. Sexual Reproduction</p> <ul style="list-style-type: none"> - 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	<p>8: Pollination is primarily autogamous (self-fertilization) but frequency is unknown; individuals typically produced only one primocane per year. 14: Fruit production is 80-100% over two years whether pollinators were excluded or not.</p>	8,14
<p>6. Number of Viable Seeds or Propagules per Plant</p> <ul style="list-style-type: none"> - few (0-10) (1 pt.) - moderate (11-1,000) (3 pts.) - prolific (>1,000) (5 pts.) - Information unknown (U) 	3	<p>4: The number of seeds per fruit in wineberry ranges from 30 to 60; it has an abundant number of fruits. 8, Comment from D. Gorchov: average of 5 fruits per plant in large gaps (Table 2, Fig. 5), much higher than in other environments (except edges) - it is very rare for a plant to have more than 20 fruits. If the average number of seeds is 45 (just choosing the midpoint of 30-60) then an extremely prolific plant would have about 900 seeds. 14: seeds per fruit (Chap 5 Figure 6), showing an average of 40-60 depending on the site; seeds need to be scarified in order to germinate.</p>	4,8,14
<p>7. Flowering Period</p> <ul style="list-style-type: none"> - 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	<p>4: Can flower in late May (one month). 8: Flowers are open in June and fruits mature in July. 14: Second year canes produce flowers in May and fruits late June to July.</p>	4,8,14
<p>8. Dispersal Ability</p> <ul style="list-style-type: none"> - 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) 	5	<p>4: Birds, reptiles, and mammals</p>	4

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Step II				
Step II	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)	0	8,14: Only established plants produce flowers on 2-yr old stems. D. Gorchov: Under ideal conditions, a 3-yr plant may produce flowers "But in general, generation time must be > 3 years".	8,14
	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)	3	4: "able to persist for decades in shaded areas, best survival and growth are obtained in moderate to high light." 8: fruiting and seedling establishment were largely limited to large treefall gaps. 14: This species has higher specific leaf area and a trend towards higher photosynthetic rate than its native congener; seeds need to be scarified in order to germinate.	4,8,14
	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	Was not indicated	4
	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	Was not indicated	
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	4: Fruits are readily consumed by birds, reptiles, and mammals; have a little forage value for domestic livestock. 13: chronic high deer density facilitates increased abundance of this plant species.	4,13	
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.)	0	Anecdotal evidence is provided in ref 9, but no empirical evidence is given.		
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.)	1	4: Hybridization within the Rubus genus occurs within and between subgenera. Although natural hybrids between wineberry and native Rubus species have not been reported. 8: introduced as stock for new raspberry and blackberry cultivars	4,8	

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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.**)

3

4: "In the Wave Hill Natural Area of southern New York, wineberry occurred in 44% of 238 quadrats with an average cover of 1.6% across 4 vegetation associations". R. Gardner: This species has spread at Tar Hollow in Ohio.

4

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.**)

1

4: considered a pioneer or early-successional species that flourishes after disturbance. Also, it is likely to quickly occupy postfire habitat and persist for decades after fire. 8: "*R. phoenicolasius* requires disturbances such as treefalls to establish in forests, but established plants will survive canopy closure, leading to stand-wide invasion."

4,8

18. Number of Habitats Invaded

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

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.**)

3

7: "found in old fields and early to mid-successional forests." 8: fruiting and seedling establishment were largely limited to large treefall gaps. 9: It occurs along forest, field, stream and wetland edges and in open woods, preferring moist habitats. 14: fields and forests in the eastern US.

7,8,9,14

- found in 4 or more rare habitat types (**5 pts.**)

Total Score: 36
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