Ohio Invasive Plant Assessment Protocol

					Score	Notes	References
	Botanical Name:	*Pyrus calleryana*					
	Common Name:	Callery pear	Step I Outcome:	**Invasive**			
	Family Name:	Rosaceae	Step II Score:	**54**			
	Assessment conducted by:	OIPC Team	Step II Outcome:	**Invasive**			
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***			x		1,2
		No. *Continue on to question 3.*					
	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				Species has self-replicating populations and will likely alter the composition and structure of natural ecosystems by creating dense thickets, but effects not yet quantified.	2,7,8,9,10,11
		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	IL, PA, KY	2,4,6
		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 questi						
	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		2,7,9,10,11,12
	- 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.**)				5	Regions 1,2,3,4,5	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						
	- plant has been reported to be a widespread problem in 1-2 adjoining states (**3 pts.**)				3	Problem in PA [also in KY, but not counted]	2,4,6
	- 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**)						

Step II				
	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.**)	0	no evidence (can root-sprout if cut at base, but this not considered vegetative propagation).	7,9
	- 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**)			
	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.**)	5	Species is known to produce viable and abundant seed through outcrossing events.	7,11
	- frequent sexual reproduction (one or more events per year) (**5 pts.**)			
	- Information unknown (**U**)			
	6. Number of Viable Seeds or Propagules per Plant			
	- few (0-10) (**1 pt.**)			
	- moderate (11-1,000) (**3 pts.**)	5	8=>"frequent large fruit set"; 11+> easily over 1,000 seeds per tree per year.	8,11
	- 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.**)	1	8=> species can have a second flowering in Sept.-Oct. brought about by drought and other stresses. Because this seems to be unusual, it is not added to the flowering time	8
	- 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.**)	5	Dispersed by birds.	7,8,9,10,11
	- 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.**)	3	Can reproduce as early as 3 years in full sun.	7,8,11
	- 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.**)	6	Species is not shade-tolerant, so its ability to invade a variety of habitats is limited, but in open areas, such as forest light-gaps and edges, as well as wetlands, species can aggressively	7,8, 10, 11, 12
	- 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.**)	3	By creating dense, thorny thickets, native species diversity can be degraded, and structural changes can	7,8,10,12
	- causes long-term, substantial alterations in the ecosystem (e.g., changing fire regime of an area, changing hydrology of wetlands)			
	12. Impact on Rare Organisms			
	- no known negative impact on Ohio State-listed or federal-listed plants or animals (**0 pts.**)	0	no evidence	
	- 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.**)	0	no evidence	
- 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.**)		By creating dense, thorny thickets,	
- negatively impacts some native plants (increasing their mortality and/or recruitment of certain taxa) (**3 pts.**)		Callery pear displaces native species.	7,8, 12,13
- impacts native plants to such an extent that community structure is greatly altered (**6 pts.**)	3	Note that this value may increase as	
15. Hybridization			
- no known instances of hybridization with other plant species (**0 pts.**)		Species is self-incompatible and can	
- can hybridize with native Ohio plants or commercially-available species, but seeds are inviable (**1 pt.**)	3	only produce seed through	10,11,12
- can hybridize with native Ohio plants or commercially-available species, producing viable seed (**3 pts.**)		intraspecific hybridization (such as	
16. Population Density			
- occurs only as small, sporadic populations or individuals (**1 pt.**)		Species can form dense, thorny	
- typically forms small, monospecific patches (**3 pts.**)	5	thickets, but no absolute cover values	7,8,12
- is a dominant plant in area where population occurs (absolute cover 15-50%) (**4 pts.**)		were discovered. More information	
- forms an extensive, monospecific stand (absolute cover >50%) (**5 pts.**)		about escaped populations will likely	
17. Role in Succession in Natural Areas			
- successional information is unknown (**0 pts.**)		Species invades disturbed sites, but	
- is an early successional species that temporarily invades a disturbed site but does not persist as the site matures (**0 pts.**)	1	the impact to successional	7,8,11
- readily invades disturbed sites and persists, but does not interfere with succession (**1 pt.**)		trajectories in unclear. More	
- readily invades disturbed sites, persists and interferes with succession of native plants (**4 pts.**)		research may change this answer to	
18. Number of Habitats Invaded			
Forestlands: Floodplain forest, hemlock-hardwood forest, mixed mesophytic forest, beech-maple forest, oak-maple forest, oak-hickc			
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.**)	3	edge of woodlands, wetlands, grasslands (old pastures)	7,8, 12, 13
- found in 3 broad categories or 3 rare habitat types (**4 pts.**)			
- found in 4 or more rare habitat types (**5 pts.**)			
Total Score:	**54**		
Number of Unkr	**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