

NAME OF SPECIES: <i>Pyrus calleryana</i> Dcne. (1)	
Synonyms:	
Common Name: Callery pear (1). Bradford pear (2). Common Cultivars include Bradford, Aristocrat, Cleveland Select.	
A. CURRENT STATUS AND DISTRIBUTION	
I. In Wisconsin?	1. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
	2. <u>Abundance</u> : This species is not recorded by any of the online Wisconsin Herbaria; however it is sold in WI, as shown by an Internet search of WI nurseries.
	3. <u>Geographic Range</u> : NA
	4. <u>Habitat Invaded</u> : NA Disturbed Areas <input type="checkbox"/> Undisturbed Areas <input type="checkbox"/>
	5. <u>Historical Status and Rate of Spread in Wisconsin</u> : NA
	6. <u>Proportion of potential range occupied</u> : NA
II. Invasive in Similar Climate Zones	1. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
	<u>Where (include trends)</u> : One known escaped population in MI (3). In the US Callery pear ranges in the southeastern US from Texas to Virginia and in the mid-west, Ohio, Indiana and Illinois (4). Ranges west to CA, it is in 26 states. (10)
III. Invasive in Similar Habitat Types	1. Upland <input checked="" type="checkbox"/> Wetland <input checked="" type="checkbox"/> Dune <input type="checkbox"/> Prairie <input checked="" type="checkbox"/> Aquatic <input type="checkbox"/> Forest <input checked="" type="checkbox"/> Grassland <input checked="" type="checkbox"/> Bog <input type="checkbox"/> Fen <input type="checkbox"/> Swamp <input type="checkbox"/> Marsh <input type="checkbox"/> Lake <input type="checkbox"/> Stream <input type="checkbox"/> Other: Escaped callery pear plants are found in disturbed areas such as fence rows, fallow fields, weedy ground, and disturbed woodlots, forming dense thorny thickets. A study of known escaped populations do not show being in undisturbed habitats. (3) "Callery pear is not hard to find as an escape in Illinois if you count seedlings or small saplings in lawns, hedges, and flower beds near planted ones. Mature, escaped trees in wild habitats are not real easy to find, but they can be spotted in most Illinois counties if you look hard enough, especially in vacant lots in towns and along highways where it has been planted. I have vouchered Callery pear as an escape in 97 of the 102 counties in Illinois. I will find it in the other five counties. Unless climate is a limiting factor, I suppose that it can be found growing as a weed in every Wisconsin county." (6)
	IV. Habitat Effected
V. Native Habitat	1. <u>Soil types favored or tolerated</u> : <i>P. calleryana</i> has high tolerance for low pH, high pH, wet soils, dry soils, sandy soils, and clay soils. (3)
	2. <u>Conservation significance of threatened habitats</u> :
VI. Legal Classification	1. <u>List countries and native habitat types</u> : From East Asia: China; Japan - Honshu; Korea; Taiwan; and northern Vietnam (2). The originating climate is sub-tropical with mild winters (3).
	1. <u>Listed by government entities?</u> Not currently. 2. <u>Illegal to sell?</u> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Notes:
B. ESTABLISHMENT POTENTIAL AND LIFE HISTORY TRAITS	

I. Life History	1. <u>Type of plant</u> : Annual <input type="checkbox"/> Biennial <input type="checkbox"/> Monocarpic Perennial <input type="checkbox"/> Herbaceous Perennial <input type="checkbox"/> Vine <input type="checkbox"/> Shrub <input type="checkbox"/> Tree <input checked="" type="checkbox"/>
	2. <u>Time to Maturity</u> : Can start flowering at 3 years (3).
	3. <u>Length of Seed Viability</u> :
	4. <u>Methods of Reproduction</u> : Asexual <input checked="" type="checkbox"/> Sexual <input checked="" type="checkbox"/> <u>Notes</u> : Some plants found in Illinois that spread by root suckers (sprouts), forming clonal thickets reminiscent of gray dogwood (<i>Cornus racemosa</i> Lam.) and white poplar (<i>Populus alba</i> L.).(5). It is non-fruiting if an isolated, single clone is planted(9)
	5. <u>Hybridization potential</u> : Possibly hybridizes with <i>P. betulifolia</i> and <i>P. bretschnideri</i> (3).
II. Climate	1. <u>Climate restrictions</u> : Hardy in zones 5-8/9 (3), however cultivars offer for sale by WI nurseries suggest hardy to zone 4. Cold-tolerant cultivars are also being developed (10).
	2. <u>Effects of potential climate change</u> :
III. Dispersal Potential	1. <u>Pathways - Please check all that apply</u> : <u>Unintentional</u> : Bird <input checked="" type="checkbox"/> Animal <input checked="" type="checkbox"/> Vehicles/Human <input type="checkbox"/> Wind <input type="checkbox"/> Water <input type="checkbox"/> Other: <u>Intentional</u> : Ornamental <input checked="" type="checkbox"/> Forage/Erosion control <input type="checkbox"/> Medicine/Food: <input type="checkbox"/> Other: <i>P. calleryana</i> is considered over-planted in a horticultural sense and as such has a very large population source (3). It is non-fruiting if an isolated, single clone is planted .On the hardiness borderline in Wisconsin, its cultivars are important landscape plants in southern Wisconsin. In my observation, it is no more invasive than apple, crabapple, fruiting pear, mountainash or hawthorn. (11)
	2. <u>Distinguishing characteristics that aid in its survival and/or inhibit its control</u> : Commonly planted tree with new cultivars being introduced into the trade frequently. May not be able to remove from cultivation, therefore fruits/seeds will always be available to reinvade. (4)
	IV. Ability to go Undetected 1. HIGH <input type="checkbox"/> MEDIUM <input type="checkbox"/> LOW <input checked="" type="checkbox"/>
C. DAMAGE POTENTIAL	
I. Competitive Ability	1. <u>Presence of Natural Enemies</u> : Desirable as a horticultural species because it has few pests (3).
	2. <u>Competition with native species</u> : Callery pear may become problematic in grasslands in central North America (3).
	3. <u>Rate of Spread</u> : -changes in relative dominance over time: -change in acreage over time: HIGH(1-3 yrs) <input type="checkbox"/> MEDIUM (4-6 yrs) <input checked="" type="checkbox"/> LOW (7-10 yrs) <input type="checkbox"/> Notes: Currently grown throughout the US, but only escaped in about 1/2 of the area (4). Seen spreading into disturbed area in 4

	years (10).
II. Environmental Effects	1. <u>Alteration of ecosystem/community composition?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes: Displace native community and interrupt succession (4)
	2. <u>Alteration of ecosystem/community structure?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes: Trees can cast deep shade, and plants can form dense clusters (4).
	3. <u>Alteration of ecosystem/community functions and processes?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes: Displace native community and interrupt succession (4)
	4. <u>Allelopathic properties?</u> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Notes:
D. SOCIO-ECONOMIC Effects	
I. Positive aspects of the species to the economy/society:	Notes: Cultivars are desirable street and landscape trees (3) (4) (9). A source of grafting stock (2). The wood can be used for furniture in rural China (2).
II. Potential socio-economic effects of requiring controls: Positive: Negative:	Notes: Not naturalized in Wisconsin, requiring removal of landscape plantings would be costly and unreasonable.
III. Direct and indirect socio-economic effects of plant:	Notes: One study found this species to be problematic in pine reforestation in Arkansas. Callery pear may also become problematic in grasslands in central North America. (3) On the hardiness borderline in Wisconsin, its cultivars are important landscape plants in southern Wisconsin. Its removal from commerce would have significant negative economic consequences for many nursery and landscape businesses. (12)
IV. Increased cost to sectors caused by the plant:	Notes:
V. Effects on human health:	Notes:
VI. Potential socio-economic effects of restricting use: Positive: Negative:	Notes: The species is borderline in Wisconsin for hardiness. Its outliers are important landscape plants (7). Cultivars are self sterile and don't produce seed unless planted near another cultivar. Specifically, Bradford hybridizes with newer cultivars.
E. CONTROL AND PREVENTION	
I. Costs of Prevention (including education; please be as specific as possible):	Notes: Preventing intra-specific hybridization may best be done by nurseries agreeing to sell only specific cultivars.
II. Responsiveness to prevention efforts:	Notes: Out of state nurseries could still sell any cultivars not legally banned.
III. Effective Control tactics:	Mechanical <input checked="" type="checkbox"/> Biological <input type="checkbox"/> Chemical <input checked="" type="checkbox"/> Times and uses: Pull out seedlings and young plants where ever they are found; dig out small trees; cut down larger trees and treat the stumps with systemic herbicides, or girdle the trees (3). Repeated mowing.

IV. Minimum Effort:	Notes:
V. Costs of Control:	Notes:
VI. Cost of prevention or control vs. Cost of allowing invasion to occur:	Notes:
VII. Non-Target Effects of Control:	Notes: May cause significant soil disturbance when removed (4).
VIII. Efficacy of monitoring:	Notes:
IX. Legal and landowner issues:	Notes: Very desirable tree. Attempts to control or restrict use would be opposed, especially by urban foresters, nurseries, and landscapers.

F. REFERENCES USED:

- UW Herbarium
- WI DNR
- TNC
- Native Plant Conservation Alliance
- IPANE
- USDA Plants

Number	Reference
1	USDA, NRCS. 2007. The PLANTS Database (http://plants.usda.gov , 26 April, 2007). National Plant Data Center, Baton Rouge, LA 70874-4490 USA
2	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?30463 (27 April 2007)
3	Vincent, Michael A. 2005. On The Spread and Current Distribution Of Pyrus Calleryana in the United States. <i>Castanea</i> 70(1): 20–31.
4	NatureServe. 2006. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer . (Accessed: April 30, 2007).
5	White, J., W.E. McClain, and J.E. Ebinger. 2005. Naturalized Callery pear (<i>Pyrus calleryana</i> Decne.) in Illinois. <i>Transactions of the Illinois State Academy of Science</i> 98:123-131.
6	John White, 1Ecological Services, 904 South Anderson Street, Urbana, IL 61801. Personal communication, 2 May 2007.
7	Ed Hasselkus, UW Emeritus Horticulture Professor. Comments on Invasive Plant Classification 2007.
8	N. Hardiman and Theresa Culley, 2005, Intra-specific hybridization as a mechanism of invasiveness for <i>Pyrus calleryana</i> . Botanical Society of America, Austin, TX.
9	Ed Hasselkus, UW Emeritus Horticulture Professor. Comments on Invasive Plant Classification 2007.
10	Theresa Culley. University of Cincinnati. Comments on Invasive Plant Classification 2007.
11	Ed Hasselkus, UW Emeritus Horticulture Professor. Comments on Invasive Plant Classification 2007.
12	SAG meeting, 9-17-07

Author(s), Draft number, and date completed: Mariquita Sheehan, 1st Draft, 8 May 2007

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Approved and Completed Date: