



CALLERY/BRADFORD PEAR

Pyrus calleryana

TARGET

This Best Management Practice (BMP) document provides guidance for managing C. Pear in the Oak Openings Region of Northwest Ohio and Southeast Michigan. This BMP was developed by the Green Ribbon Initiative and its partners and uses available research and local experience to recommend environmentally safe control practices.

INTRODUCTION AND IMPACTS — Callery Pear (*Pyrus calleryana*) is native to China and was first brought to North America in 1917 to create a fire-blight-resistant strain of fruiting pear. The Bradford cultivar was developed for ornamental use in the 1950s. It and other Callery Pear (or C. Pear) cultivars have become some of the most widely planted urban trees in the Midwest thanks to their showy spring flowers, fast growth, and ability to withstand urban stresses. However, C. Pear has escaped cultivation. As of 2018, OH has banned the sale and distribution of C. Pear, but it is already present across OH and MI.

The Midwest Invasive Species Information Network (MISIN) has only 2 reports of C. Pear (black dots) in or within 5 miles of the Oak Openings Region (OOR, green line). However, C. Pear is only newly considered invasive. Wild C. Pear has been collected in OH and MI. It can be found in ornamental plantings across the OOR and is quickly invading out natural areas. C. Pear has demonstrated the ability to establish and spread in healthy and disturbed habitats of the OOR and both the wet nutrient rich soils of wet prairies as well as sandy dunes and oak savannas. This species is in the early stages of invasion in the region making reporting and prevention critical.

C. Pear has several characteristics that contribute to its success as an invader. First, it is able to tolerate drought, pollution, heavy clay soils, and a wide variety of environmental conditions. Through seed and vegetative reproduction, C. Pear quickly colonizes any space where there is light enough to grow, including the small canopy openings of forests and woodlands. While individual cultivars are self-sterile, they are able to fertilize each other when planted in close proximity. The resulting large quantities of fertile fruits are distributed widely by birds and other animals, especially the pervasive European Starling. Note: C. Pear breaks easily in wind, ice, and snow, making it a physical hazard as well as a biological one.

The dense thickets formed by C. Pear allow it to outcompete native plants, and degrade the quality of the habitats in which it becomes established.

SIMILAR SPECIES — In the OOR, the following species may be mistaken for C. Pear:

Serviceberry (*Amelanchier* spp., native) — petals are brighter white, star-shaped, and wavy with space in between, while C. Pear's are rounded and close together.

Wild Plum (*Prunus americana*, native) — stamens longer than petals.

Apple (non-native) and crabapple (*Malus* spp., some native species) — pinkish flowers with branches nearer to horizontal and less uniform than the vertical, symmetrical branches of C. Pear.

HABITAT — C. Pear prefers high-light environments, but otherwise tolerates a wide range of conditions including pollution. They can grow in sidewalk cracks or wide open spaces and tend to colonize waste areas and open fields. Shady areas may resist invasion. C. Pear has been found in sand dunes, floodplains, fallow fields, prairies, near ponds, along roads, ditches, and streams.

IDENTIFICATION — **Habit:** Original cultivar is a pyramidal/tear-dropped/spade-like, spreading tree. Young trees may be more columnar in shape. Can reach 50' tall and 20-30' wide. Cross-cultivar progeny tend to be stout, thorny, and multi-stemmed.



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Leaves: Simple, alternate, and shiny. Oval in shape, 2-3" long and 1.5-2" wide. Wavy, slightly-toothed margins. Dark green, turning orange to purplish-red in the fall. Persist into winter.

Stems: Bark is shiny and brown on young trees, but becomes light grey and slightly ridged to scaly with age. Many cultivars lack thorns, but cross-cultivar progeny can be thorny.

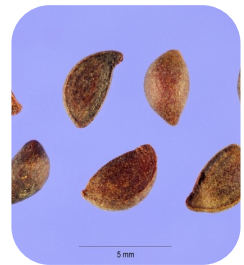
Flowers: White and 5-petaled, in clusters of 6-12 that are 2-2.5 cm in diameter. Abundant clusters appear before leaves. Have a putrid scent. Most have 2 styles, but some have 3. Pollination by bees enables cross pollination between cultivars within a mile of each other.



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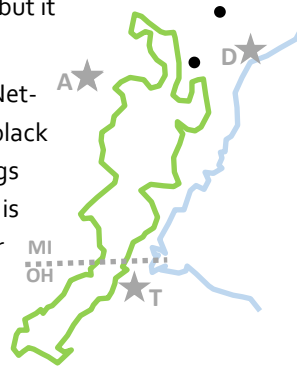


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Fruits: Round, 1/2" in diameter, and olive-brown. A preferred food of European Starlings (non-native). C. Pear is estimated to produce from 200-3600 fruits per square meter of tree canopy.



C. Pear Timeline	J	F	M	A	M	J	J	A	S	O	N	D
Life History	Dormant		Flowering		Leaf Out, Summer Growth			Fruit Ripens			Dormant	
Foliar Spray					Spray - wait 6 weeks before follow-up.							
Girdling				Girdle								
Basal Bark/Stump Cut	Treat				Treat							

Seeds: 2-6 per fruit. See image.

Roots: Seedlings described as having large taproot.

Ann Arbor Variant: According to the University of Michigan Herbarium, some trees in the Ann Arbor Area (Washtenaw Co., MI) have leaves like C. Pear but flowers with 3-4 styles and slightly larger ellipsoid fruits. These may be a hybrid between C. Pear and another *Pyrus* species, or possibly a separate species altogether.

REPRODUCTION AND DISPERSAL — C. Pear spreads by seed and by root sprouts from established trees. Damaged roots will sucker. Plentiful fruits are dispersed primarily by birds, and seeds will persist in the seed bank if conditions are not right for germination.

REPORTING — As a target species in the OOR, reporting C. Pear is essential for its control. C. Pear is easiest to identify when it is flowering, though trees may not flower until their third year. Report C. Pear at www.misin.msu.edu

CONTROL — The best control is integrated. Management plans should focus on preventing C. Pear from fruiting, and killing the tree with systemic herbicides where conditions permit. Annual follow-up is essential in the treatment of C. Pear, and monitoring should include everything within at least 1 mi of the original patch.

Chemical: C. Pear is a relatively new invader and few control recommendations exist. The following have been compiled from groups working in OH, MD, PA and MO. It is your responsibility to ensure you are in compliance with herbicide labels and regulations when planning chemical treatment. Follow-up treatments should take place 6 weeks after cutting or initial application.

Foliar Spraying—Best for large, dense populations or as follow-up after cutting. Herbicides should be used with 0.5-1% of an appropriate non-ionic surfactant (e.g. Cygnet Plus®, LI-700, etc.).

Stump Cut—Cut down tree and immediately apply 25-50% glyphosate or triclopyr to the cross-section of the stem. Best for small to medium populations.

Girdling—For mature trees only. Cut through the bark all the way around the trunk about 6" above the ground. Spray or wipe herbicide at the "Stump" rates into the cut.

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Herbicide	Trade Names	Concentration
Glyphosate	Aquamaster®, Rodeo®, Roundup®	Spray—2-5% Stump—20-50%
Triclopyr	Garlon 3A® or 4 Ultra®, Pathfinder®	Spray—2-5% Stump—25-50%

Basal Bark Treatment—For trees up to 6" DBH. Spray or wipe the bottom 12-15" of each trunk with herbicide. Cover all sides of the trunk. Oil is often the carrier, rather than water. Not for use in standing water or snow.

Stump sprouts should be treated with an appropriate systemic herbicide (e.g. glyphosate or triclopyr) or ground up to prevent re-sprouting.

Mechanical: Seedlings may be hand-pulled if the soil is moist, but take care to remove the entire root system. Stump grinding 6-12 inches below ground may prevent resprouts. Anything that might damage the roots is not recommended, as they will sucker. Mowing is ineffective. In all mechanical removal scenarios, ensure you clean your equipment and dispose of all plant material appropriately (see Disposal below).

Biological: C. Pear is resistant to disease and herbivory, though some damage has been reported from white-tailed deer.

Prescribed Fire: C. Pear reportedly produces numerous sprouts in response to fire.

Notes for C. Pear in Landscaping: Remove C. Pear trees and replace them with alternative, native species. Fruit production can be prevented by spraying blooms with ethephon (95% effective). Suckers at the base of the tree should be removed to prevent possible cross-pollination with the main trunk.

DISPOSAL

- If no fruit is present: cut trees or branches can be left in place. Hand-pulled seedlings can be left on site if roots are not in contact with the soil.
- If fruit is present: fruit should be incinerated, or sealed in plastic bags and disposed of in a landfill.
- Ensure all non-fruit plant parts are dead before composting, either by drying completely or liquefying in plastic bags.