

Bradford, Callery and Other Ornamental Pears

Fast-Growing, Thorny Threat to Farmland and Natural Areas

The Culprit

Once considered to be the perfect landscape tree for front yards and street plantings, the Bradford pear (*Pyrus calleryana* 'Bradford') turned out to be a scourge upon the agricultural and natural world. Nevertheless, it and similar cultivars, such as 'Aristocrat', 'Redspire', 'Autumn Blaze', 'Capitol', 'Cleveland Select', 'Chanticleer', and 'Whitehouse' (all potentially invasive) continue to be sold by nurseries in Virginia and elsewhere. Admired for its oval shape, masses of white flowers in very early spring, fiery foliage colors in late fall, and tolerance to difficult growing conditions, this cultivar of the Callery pear (*Pyrus calleryana*), native to China, was widely planted beginning in the 1960's.



Bradford pear was widely planted because of its appealing shape.

Bradford Pear became the darling of nurserymen, who could not seem to sell enough

of them. The environment is now paying the price for this misplaced enthusiasm.

Ornamental pears (*Pyrus calleryana* and its cultivars) are now considered to be invasive in 29 states. Many states list them as noxious weeds. (Ohio and Pennsylvania are two such states.) In Virginia, these trees cannot be added to the noxious weed list because the renegotiated 2016 Noxious Weed Law prevents the inclusion on the list of any plant that is grown in Virginia nurseries, regardless of the cost to the environment.

Some municipalities in states other than Virginia forbid planting ornamental pears and offer replacements to homeowners who cut them down. This is because the trees are invasive and also because Bradford matures into a serious hazard. As specimens of the first-planted Bradfords matured in the 1980's alarm bells went off. The trees' tight, upright branching structure began breaking apart. Older trees with heavy branches can split apart and fall onto cars, sidewalks, and homes during storms and also do so suddenly with no apparent cause. Another complaint about ornamental pears is that the flowers give off a stink reminiscent of unwashed gym socks.

Bradford is self-sterile and was assumed to be incapable of producing fruits when first released to the public. However, in the 1980's, several new cultivars of Callery pear designed to correct for Bradford's problematic branching structure

were introduced by the nursery trade. They turned out to be capable of fertilizing Bradfords and each other. So, the "sterile" Bradfords planted all over and the new cultivars, also supposedly sterile, suddenly began producing fruits. Birds, especially starlings, an introduced species, feasted on the fruits and planted seeds that grew into weed trees across the built and natural landscape. Ornamental pears can also be cross-pollinated by the edible Asian pear (*Pyrus pyrifolia*), which is grown in home and commercial orchards.

Some authorities say it does not matter if people don't remove ornamental pears, or if they continue to plant them, because there are so many escaped pears already trashing the environment. On the contrary, because the seed bank is long-lived, it makes sense to eliminate all cultivated sources of new seed, while also destroying as many naturalized invasive pears as possible. So, please *do not plant* Bradford or other cultivars of ornamental pear, and *do remove* existing landscape pears.



Invasive ornamental pears line this highway in Maryland, displacing natural vegetation that is good for wildlife and forming a launching pad for invasions into farmland and natural areas.

Known Hangouts

By the late 1990s, people began noticing naturalized ornamental pears growing along roadsides in Maryland and elsewhere in the Mid-Atlantic, and soon thereafter in the South and Northeast. The invasive pears had gone unnoticed until they became old enough to flower. Each successive year revealed more and more naturalized pears popping up in unmaintained areas, all capable of amplifying the invasion via their seeds. In the first years of the 21st century, naturalists and land managers discovered naturalized pears invading pastures, forests, timbered land, hedgerows, wetlands, meadows, and untended land. The horse had escaped the barn!

Modus Operandi

Invasive pears gain a foothold in agricultural or natural areas if cultivated ornamental pears (Bradford along with other cultivars and the Callery pear species) are growing nearby in home or public landscapes. Because they flower and set seed when as young as three to five years old, naturalized pears quickly spread and replace desirable plants in invaded areas. Once established in a fallow field or vacant lot, they are off and running. They bloom, fruit and sprout rapidly into thorny thickets and send forth more progeny to intensify the incursion and assault new land. As with other woody invaders, such as the hated autumn olive, pears threaten pastures and fields because grazing livestock do not eat them. If a farmer attempts to mow or bush-hog these pernicious pears, the stout thorns can puncture the tractor's tires. If cut down and not treated with herbicide, new trees grow from the roots.

Ornamental pears' early blossoms attract bees, which pollinate the flowers. When cross-pollinated, all types of ornamental pears, even those that were supposed to be sterile, produce great quantities of fruit, which are gobbled by birds. Flocks of starlings are especially troublesome, spreading the seeds far and wide. Ornamental pear seeds remain viable in the soil for at least 10 years, which makes control a long process.



Top to bottom: ornamental pear flowers; fruits and leaves; thorn and twig; overwintering buds.

Positive Identification

All ornamental pears, whether Bradford, other cultivars, or the pure species, have shiny, waxy, thick, dark green leaves with tiny rounded teeth along the edges. Leaves are rounded to oval with a small point at the tips. The clustered, over-wintering flower buds are elongated to about ½ inch and bluntly pointed; they may be covered with gray to brownish, woolly hairs or be smooth. Clusters of five-petaled, malodorous, white flowers cloak the trees in very early spring before leaves emerge and remain until young leaves appear.

Most, but not all, naturalized pears have thorns up to 3 inches long. The fall fruits are round and vary from pea- to cherry-sized and ripen from green to brown with russet dots. Twig bark may be furry or smooth and reddish. The trunk bark of older trees is brown and shallowly furrowed. While tree shape is variable, most naturalized ornamental pears are strongly oval to pyramidal.

Mistaken Identity

The only very early-blooming, white-flowered trees that blossom at the same time as ornamental pears and are likely

to be found in hedgerows and fields are native plums. They exhibit clusters of white, five-petaled flowers that also bloom before their leaves emerge. They are fragrant, unlike bad-smelling pear blossoms. Both American plum (*Prunus americana*) and Chickasaw plum (*Prunus angustifolia*) are thorny, like pears, but are shrubby and twiggy, unlike single-trunked pears.

Search and Destroy

Control efforts are much the same as for autumn olive and other woody invasives. Continual monitoring and control may be necessary for many years, depending upon the seed bank's age and if there is a nearby source of new seeds.

Pears are easiest to control when young; however, they may be difficult for the untrained eye to spot from a distance until large enough to stand out among other vegetation. By then they may be able to flower and set seed. Small saplings may have smooth, copper-colored bark. Three-year-old and older trees are easy to spot in spring and fall, because they bloom in very early spring, before redbuds, and their leaves remain green later than most plants, turning bright colors very late in autumn.

Manual & Mechanical Control: Do not mow small pears because this encourages multiple resprouts from the roots, intensifying the infestation. Fields and lots taken over by invasive pears can be mowed or cleared with a forest mulcher; however, resprouts then require a foliar herbicide. **Foliar Applications:** Control trees less than 6 feet tall with a higher-than-usual (3 to 4%) concentration of foliar spray. Cover all leaves. Foliar sprays are effective from when pear leaves emerge until just before they begin to develop fall color. Visible effects may take one to seven months to show up. **Tree Trunk Treatments:** Cut trees near the ground then paint the stump with concentrated herbicide. If resprouts occur, use a foliar spray. You can also hack the tree trunk's circumference, leaving 2-inch spaces between hacks, and apply a concentrated herbicide into the wounds. The entire circumference of the lower trunk of small trees with smooth bark may be sprayed in a 12- to 18-inch-high band with an oil-based, concentrated herbicide. Best time for these methods is fall into early winter.



Invasive pears have naturalized in this vacant lot.

For currently approved herbicide recommendations, check the Virginia Department of Forestry chart *Non-Native Invasive Plant Species Control Treatments*, on the Blue Ridge PRISM website. Follow directions for autumn olive when treating ornamental pears.