



Excerpted below is an article written by Clemson University's Bob Polomski about the increasingly problematic Callery pear. That article spurred us to get field reports from colleagues of his in South Carolina and from urban foresters in Kentucky, Tennessee, and Missouri.

From the Darling of the Nursery Industry to the Invasive Watch List

By Bob Polomski, Ph.D., Clemson Extension Specialist & Horticulture/Adjunct Asst. Prof., Clemson Dept. of Plant & Environmental Sciences

Since its debut on the cover of *American Nurseryman* magazine in 1963, the popularity of Bradford pear (*Pyrus calleryana* 'Bradford') soared as a street-tough tree with three full seasons of beauty. In early spring, Bradford pear trees erupt into bloom with ovate snowballs of bright white flowers that give rise to leathery, dark glossy green leaves. In the fall, the persistent leaves explode into shades of orange, red, and purple. In many arenas, Bradford pear also has



Volunteer pears on the march! Photo by Brett O'Brien

unparalleled toughness including tolerance to drought and resistance to fire blight, a devastating bacterial disease that injures and kills edible pears.

Back in 1963, Bradford pear appeared to be the perfect ornamental street tree but its Achilles' heel turned out to be its production of closely spaced, upright branches. As these poorly attached branches grew and expanded in girth, the crown tended to split apart during snow-, ice-, and windstorms. It often happened to unpruned or poorly pruned trees when they reached 15 to 20 years of age.

To overcome this structural flaw, cultivars were developed that offered improved branching habits, such as 'Aristocrat' and 'Chanticleer'; the latter was the SMA 2005 Urban Tree of the Year. Other cultivars were developed with narrower forms, such as 'Capital', a U. S. National Arboretum release, that embodied the aesthetic and urban-tolerant traits of Bradford but offered applications in tight, confined locations.

This profusion of Callery pear cultivars eventually led to another problem that had ecological consequences. In the past, Bradford pear rarely produced viable fruit because it's self-infertile, but with the widespread planting of cultivars that differed slightly genetically, the barrier to fertility and subsequent fruit production was overcome. Further, in some cases the Callery pear understock of a Bradford pear would sprout, flower, and provide viable pollen. The Callery pear fruits were consumed and dispersed by birds and other animals to open, disturbed habitats where the progeny formed dense thickets.

These naturalized Callery pears mature early—flowering starting at three years of age—and are one of the first trees to bloom in early spring. They're also one of the last trees to lose their leaves in fall. Callery pears are resistant to insects and diseases and their thorny stems and branches discourage deer-browsing. Interestingly, the "Survivor Tree" at the 9/11 Memorial is a Callery pear that survived the September 11, 2001 terror attacks at the World Trade Center. In the context of the Memorial, it serves as a symbol of survival, recovery, and resilience.

Some states in the Mid-Atlantic, Southeast, and Midwest regions of the U.S. have declared Callery pear to be an invasive, self-sustaining species that dominates and disrupts native flora. Here in South Carolina, Callery pear is on the invasive watch list. In the past, I encouraged Bradford pear owners in our state to selectively prune the branches. Now that I have witnessed large tracts of land throughout our state covered like a white fog in early spring, I encourage them to prune Callery pears at soil level.

—Bob Polomski



Americorps volunteers clearing rogue Callery pear hybrids from natural areas in Columbia, Missouri. Photo by Brett O'Brien

Prior to accepting the position of Horticulturist for the City of Clemson four years ago, I worked for 25 years in the private landscaping sector. In the early 1990s a lot of the Bradford pears were just reaching that point of maturity when they start to self-destruct due to their poor branching habit. My first encounter with the Callery pear was in 1993 on the grounds of a local technical college. Our crew was removing the tree for a construction project and thinking it was a regular old Bradford; I started whacking away at the branches and quickly discovered that this particular "Bradford" had a sharp end to it!

After getting ripped to shreds trying to remove the tree I asked the grounds superintendent, what on earth is this thing? He informed me that I was dealing with a parent of the Bradford pear as this specimen was reverting (by way of bud sport) back to its thorny parentage.

Fast forward twenty years to 2013 and I was a month into my new position with the City of Clemson. The transitional vacancy in leadership had left a lot of areas unkempt and my new crew and I spent a lot of that first year on reclamation. When we started clearing—and getting scratched by—a dense thicket of vegetation beside a parking lot at City Hall, I realized the thicket was my old nemesis, the Callery pear. It had reached a shocking size and dominance. In the last four years we have removed many of these nasty pear volunteers. Callery pear has now joined privet (*Ligustrum sinense*) and thorny olive (*Elaeagnus pungens*) on our "public enemy #1" invasive plant list. I would discourage the sale and use of this public pest!

—Tony Tidwell, Horticulturist, City of Clemson Parks and Recreation, Clemson, South Carolina

In an [article](#) printed in the 2008 Sept/Oct issue of *City Trees*, I described the Columbia, Missouri Parks and Recreation Department's efforts to confront the alarming spread of invasive Callery pear hybrids in our community with a campaign we called "Stop the Spread!" It has been nearly a decade since the campaign began and now is probably an appropriate time to share an update.

The "Stop the Spread!" campaign's primary focus was to raise awareness of the Callery pear problem in Columbia, and on that level I believe we were successful. We originally began with brochures and posters but I think we reached many more people with our City website and a video our creative City staff produced.

The Missouri Department of Conservation (MDC), who originally helped fund the campaign with a grant in 2007, gave the campaign another boost in 2011 by publishing in their *Missouri Conservationist Magazine* a very affirmative "Stop the Spread!" article by MDC Regional Community Forester Ann Koenig. The highly acclaimed Missouri Conservationist Magazine reaches a very large and broad audience, and this article is how many Missouri residents first learned about the invasive threat posed by Callery pears. At this point, MDC is actively encouraging residents not to plant ornamental pears and currently lists Callery pear as an invasive plant pest.

Although awareness of the Callery pear menace has increased in our community, unfortunately the spread of wild pears in our community continues unabated. As we explore better ways to manage the seedlings we find popping up in our parks and nature areas, we have worked with many others in search of solutions. One example is our partnership with the University of Missouri Division of Plant Sciences.

The University has a weed control program in Industrial Vegetation Management (IVM); due to the growing concern in the industry about the escape of Callery pear, they were seeking sites with Callery pears that they could treat with newer herbicides. We had several remote areas we could provide them and in return were able to pick up some management ideas. A good example would be are switching from the "hack & spray" method I mentioned in the 2008 article to a much easier and faster basal bark spray using methylated seed oil in combination with a liquid triclopyr butoxyethyl ester formulation.

The issue I see brewing is that Callery pear seedlings are moving further and further into the countryside, away from the suburbs and cities from whence the problem sprang. How far and how prolifically the pears have spread nobody really knows; it's surely not being fully reported. However, we can all help change that by using the [Early Detection and Mapping System](#) (EDDMapS) to document wild Callery pear seedlings we discover. EDDMapS is an easy-to-use, web-based mapping system for documenting invasive species distribution. I realize that nowadays, everything seems a crisis, but this issue is really one that should not be ignored. The sooner we all come to grips with the depth and seriousness of this invasive plant threat, the more likely we will still have ability to control its spread.

—Brett O'Brien, Natural Resources Supervisor, Columbia, Missouri



Reverted "fruitless" pears produce viable fruit, which birds eat and disperse everywhere. Photo by Brett O'Brien



Reverted pear volunteers can be dangerously thorny. Photo by Brett O'Brien

(right) Many city foresters feel that this is the best use of Callery pear. Photo by Steve Cothrel





Escaped pears shoot up into power lines. Photo by Brett O'Brien

We recently hired an arborist who is tasked with managing Callery pears on our greenways and in our natural areas as part of our Reforest the Bluegrass program. Cutting down the pears is a hard sell to the general public who love the pears' blooms in the spring. To restore these parcels of land is not a quick and easy venture—this takes time and patience. Where we've removed the pears, we replanted with native trees and shrubs to keep the competition at bay.

At a tree board meeting not long ago, a developer said they'd looked at a recent aerial photo of a development in our area and wondered if all the white blobs were sheep. A closer look revealed that it was thousands of pear trees in bloom. They are a major problem in Central Kentucky and they outcompete

(left) Columbia, Missouri's "Stop the Spread" campaign has been successful in educating the City's residents about why not to plant Callery pear. Photo by Brett O'Brien

many of our native trees and shrubs ... not really the canopy gains we are looking for.

When I was in County Kildare, Ireland three years ago on the SMA Arborist Exchange program, my host Simon Wallace was delighted with the Callery pear and how well it was adapting to Ireland's climate/conditions. I tried to warn him about potential invasiveness and recently followed up with him.

He said, "The pears are behaving themselves fine in Kildare. It is mainly *Pyrus* 'Chanticleer' that is used as a street tree here and in Dublin—but not extensively. There are some issues with the brittle wood, but only very occasional. The trees do not fruit very well here if at all due to the cooler summers we get. The same would be the case with the common pear so we have no issues with reseeding or invasion as a result."

—John Saylor, Arborist and Senior Program Manager, Lexington-Fayette Urban County Government, Kentucky

Back 20 to 25 years ago, Bradford pear was about the only tree planted by the City of Columbia, South Carolina. At the time, it was *the* new tree to plant. Bradford pears offered beautiful spring flowers, great fall color, and few if any disease or pest problems. They tolerated our hot and humid environment well. It seemed as though they were a great fit for our tight spaces and tough urban areas. However, as the trees grew over the years, the branch angles got tighter and tighter and the limbs became heavier at the ends. The limbs would eventually get heavy enough to split off and leave a hole in the trunk.

With each afternoon thunderstorm in the spring and summer, we lose whole sections of Bradford pear trees and we have to remove more of the remaining individuals to prevent addi-

tional risk to people or property. Stumps and root systems must be ground thoroughly; otherwise, the tree can re-sprout relatively quickly, and that adds to the invasiveness problem as those re-sprouting trees mature to flowering and fruiting.

We have been slowly working to eliminate these trees and do not plant them because of the glaring problems. Although we still occasionally receive a request for a Bradford pear, most residents have seen the damage and want a more suitable replacement. The real question now is, what are we currently planting that will cause trouble down the road?

—Sara E. Hollar, Superintendent, Public Works-Forestry and Beautification Division, Columbia, South Carolina



Fall color reveals how many pears have invaded this pasture in Columbia, Missouri. Photo by Brett O'Brien



Volunteer pears bloom along a fence line. Photo by Gene Hyde

Ornamental pear in Southeast Tennessee is becoming a nuisance on par with mimosa (*Albizia julibrissin*) and tree of heaven (*Ailanthus altissima*). We're talking about not only the cultivar of Callery pear known as 'Bradford' but also its cousins—'Aristocrat', 'Cleveland Select', and a host of others. While it has a list of desirable traits: lovely white spring blooms, little in the way of insect and disease problems, and a reputation of general hardiness, the fact that it is so invasive is just too hard to ignore and condemns it to the scrap pile of bad choices.

The Tennessee Exotic Pest Plant Council has listed it as invasive and boy is that an understatement. It's not uncommon to

see large fields and fence rows covered with the white blossoms of newly sprouted volunteers in the spring. In our area the fruit of these pears is eaten by birds; everywhere they poop, a reverted Callery pear sprouts up—complete with formidable thorns. In addition, once the pear trees reach 15 to 20 years of age they become candidates for serious splitting due to included bark and weak crotches. It's to the point that I refuse to plant them anymore and I don't allow contractors to plant them on any city-owned properties, either. What was sold as the "wonder tree" tree of thirty years ago is now the headache of today.

—Gene Hyde, City Forester, Chattanooga, Tennessee