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“Riverview Park: A Park of Legacy, An Ecosystem Out of Balance”

Once, while I was in college, I heard a talk on finding your purpose in life. This was during a Christian campus ministry meeting in an auditorium with a couple hundred other people. I was an angsty 20-year-old seeking direction and maybe even answers to the bigger questions of life, so I was all ears. (I’m still seeking, and still a bit angsty, but now more into questions than answers ...)

The speaker, a tall, charismatic white guy in his thirties, described meeting a researcher who’d dedicated the better part of his career to studying earthworm poop—cultivating it, gathering it, deconstructing it, mapping its composition, and so on. Shaking his head, the speaker asked the crowd of college students if they could think of anything less worthy of their lives than this slimy little invertebrate’s feces. He went on to insist that God had a much more significant plan for them than what this researcher was pursuing.

He didn’t elaborate on the worm poop work or give it much context. I don’t know what the research entailed, but the speaker’s dismissiveness never sat well with me. I wasn’t comfortable assuming the scientist’s work couldn’t be significant or contribute in some way to human understanding, even progress, much less the progress of other species or the environment. Instead, the speaker championed more high-minded “spiritual” labors in formal ministry.

The dissonance I felt that day stuck with me, and it has come to mind periodically ever since. Now, nearly three decades later, I’m encountering earthworm poop in spades: I’ve learned that poop left by invasive snake worms in Pittsburgh’s Riverview Park is contributing to the collapse of entire ecosystems there. Turns out that research into worm poop could be a matter of life or death for species competing to survive in Riverview, one of the city’s five major parks.

Municipal leaders, park staff, residents, and many others have tried to address this and other problems plaguing Riverview, including erosion, collapsing infrastructure, and other invasive species. Even artists, through the city’s Art in Parks program, are getting involved. [Sans façon, an international art practice comprised of Tristan Surtees and Charles Blanc, and collaborator Steve Gurysh are implementing a series of interwoven projects](#) that will help us engage with the park, plant native species, and envision a future in which the park’s ecosystem has been restored. But those worms—along with certain other species of flora and fauna here—have gone so unchecked that they’re posing an existential threat to Riverview.

Stop just about anywhere along the trails crisscrossing the park’s 259 acres, and you’ll see worm poop. A lot of it. Invasive snake worms—known variously as Asian jumping worms, Alabama jumpers, or “crazy worms” because of the way they flop and flip around—have taken over. According to Pittsburgh Parks Conservancy staff, these worms were discovered in the United States in the 1930s or 1940s, likely arriving as stowaways with non-native ornamental plantings, though it wasn’t until the last few decades that they’ve become a major domestic concern.

Contrary to popular belief, a proliferation of worms isn't always good for soil—especially in forests—and snake worms are a growing scourge. These smooth and glossy worms grow up to eight inches in length. They reproduce asexually and multiply rapidly, laying as many as sixty cocoons per clutch and producing up to two generations within a calendar year. All those worms eat an unfair share of the park's leaf litter, leaving behind piles and piles of dry, pebble-like casings that don't replenish the soil or encourage plant growth. Instead, the casings wash away easily during rainstorms, leading to erosion.

And Riverview Park has serious erosion problems, caused in part by a lack of understory holding the soil in place, as well as natural factors such as a steep topography, shallow soils covering shale rock, and the park's numerous natural springs. As erosion causes tree roots to become exposed, larger, older trees lose their grip and topple into ravines. Take a drive along the park's winding roads and you'll see this loss of tree canopy, as well as sinking pavement and guardrails sliding down hillsides. Meanwhile, layers of organic humus are washing into the city's already overwhelmed sewage system. So, all those snake worms and all that worm poop are making matters much worse.

To be fair, snake worms aren't the only species adversely affecting Riverview. It just so happens that snake worms also like to eat deer poop, and these days there's a lot of deer poop to be had. By one count, Riverview hosts five times more white-tailed deer than the park can support. Each of those deer can eat up to twelve pounds of plant matter in a day. Though native to the region, deer no longer have natural predators in the area, such as mountain lions, bears, and wolves, that might otherwise stabilize the population.

Invasive plant species also contribute to the park's lack of understory. When those large legacy trees do fall, leaving a gap in the canopy, garlic mustard, Japanese knotweed, and oriental bittersweet, among other invasives, compete for that exposed sunlight. These plants run roughshod over entire sections of forest. Deer gladly feed on native plants such as trillium and Canada Mayflower, but they tend to avoid invasives. Additionally, the invasive Norway maple is replacing many of those lost trees and now comprises 70% of the park's tree population.

Together, these species have created an ecosystem that's increasingly homogeneous, self-destructive, and, ultimately, unsustainable.

As the forest floor coverage, saplings, and shrubs die off, so do the ways they support biodiversity and contribute to a healthy ecosystem. This essential plant life sustains pollinators, prevents erosion, and provides food and nutrients for creatures in each link of the food chain, including many species of insects, mammals, and birds. Lose native species and biodiversity and that chain breaks, resulting in an imbalanced ecosystem and, in turn, causing Riverview Park to be racked with mudslides and crumbling roads. Additionally, the park loses some of its ability to efficiently provide us with clean air and water. And none of this—the deteriorating infrastructure, the lack of species diversity, the masses of writhing worms—is appealing to park visitors looking to enjoy a robust forest and its inhabitants.

The effects of these imbalances extend well beyond the park's ecosystem or visitors' interests in pleasant, pretty spaces. The city and county have had to invest funds to repair these washouts; in

late 2020, the mayor's office announced that an Allegheny Regional Asset District (ARAD) capital fund would dedicate \$1.8 million to manage landslides in Riverview Park. Worms and worm poop, deer and their proclivity for devouring just about anything in their path, and the need to get invasive species under some semblance of control have all become a fiscal burden. Meanwhile, there's an estimated \$400 million worth of backlogged repairs in need of attention throughout Pittsburgh's park system.

Various agencies and organizations have been working to eradicate invasive plants by cutting invasive woody vines out of trees, planting trees that deer find unappealing, and protecting sapling bark with plastic tubes or mesh guards. [Friends of Riverview Park](#), a coalition of residents supporting change in the park, is proposing the installation of meadows designed to encourage the growth of native species. The Pittsburgh Water & Sewer Authority (PWSA) has been spearheading the Woods Run Stormwater Project to mitigate erosion problems, using green stormwater infrastructure such as rain gardens and tree plantings to stave off stormwater runoff. They've also made plans for deer exclosures (fenced areas) that would enable sections of the park to reestablish plant life. But these efforts aren't, over the long-term, going to adequately restore the park's species imbalance and loss of understory.

Currently, city and park staff—and land managers and scientists in general—have no system for managing or eradicating snake worms. As for deer, Civil & Environmental Consultants, an environmental consultancy working with PWSA, has recommended culling the deer herd. Some townships have done so using sharpshooters in controlled kills or through sterilization programs. Pennsylvania Game Commission (PGC) officers have offered to help create a special bow hunting district in the park or adjacent wooded areas. Proposals for deer culling can lead to contentious public debate (just ask leaders and residents in [Mt. Lebanon](#) and Upper St. Clair townships), but it does happen successfully in some places. The borough of Fox Chapel, just north of Pittsburgh, has cut the number of deer-related automobile crashes there by 80% since their management program began in 1993. Sharpshooters and archery hunters took 158 deer in Fox Chapel during the 2020–2021 hunting season. [In Philadelphia, a controlled kill program](#) has reportedly sent up to 8,600 pounds of deer meat to food banks in just one year.

The problem is, news about worm poop, over-grazing deer, and other invasives isn't really news. For a few decades now, local journalists have been megaphoning concerns about deer as a nuisance (such as [here](#) in 2006 and [here](#) more than ten years later). Snake worms have received less attention ([here](#) and [here](#)), but they've been known to be a problem for decades now, not only here in Pittsburgh but in forests throughout the country.

We need to do a better job talking about—and continuing to research—topics like worm poop and controlling the deer population and managing invasive plants. These topics aren't sexy (just ask that speaker I heard in college) and can seem much less urgent than other pressing matters in our city and region. But our parks are the city's largest, most established, and arguably most important forms of green infrastructure. They're good for the environment, good for peoples' health, and good for the local economy. Without hard conversations about how to control deer and allocate resources and research that will deal with snake worms and other invasives, we'll lose more trees, erosion will continue, and more infrastructure will crumble. An off-kilter ecosystem will only become more and more difficult to bring into balance.

Much has already been done to improve or restore Riverview Park, from the \$2.3 million transformation of a Department of Public Works dumping site into a soccer field, to the 2008 restoration of the ornate Chapel Shelter, to the ongoing upkeep of the Allegheny Observatory, including current repairs to the largest of the astronomical research center's domes, which holds the country's third largest refracting telescope. The Department of Public Works is in the process of relocating some of its structures from the southern part of Riverview Park, while the Grand Avenue entrance is slated to be redesigned to make that part of the park more attractive and accessible.

The city's Art in Parks program is also part of this effort. Artists Sans façon and Steve Gurysh's interwoven projects include mapping and marking "witness" trees that were present at the park's 1894 founding, creating a wooden, carved monument to these trees, hosting drawing classes, and planting native seedlings throughout the park. Over the course of more than a year, the artists attended community meetings, walked Riverview with park staff, and developed these plans in collaboration with city staff and local residents. Their efforts celebrate the park's heritage and raise awareness of the park's value for local residents and visitors, while working to improve the health of its ecosystem.

It's arguable that this land—originally occupied by the Delaware, Shawnee, and Seneca people—has never been so out of balance, the ecosystem so out of whack, and the stewardship so inadequate. But capital projects and art integration can help us more effectively steward these 259 acres once known as Watson Farm—help improve the ecosystem and make the park more accessible. They can also inspire more earnest conversations about how we can keep invasive species in check and create a healthier, more balanced Riverview Park.

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