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The Diseased Rhododendrons That Triggered a Federal Plant Hunt

The garden shrubs have been known to spread Sudden Oak Death, and the government is ill prepared to prevent an outbreak.

ILLUSTRATION BY JULIE BENBASSAT

Every spring, Americans flock to their local box store or nursery looking for ornamental plants—something to spruce up their front yard, perhaps, or block out nosy neighbors. Last year’s pandemic lockdowns supercharged this annual

ritual, as people with time on their hands, craving distraction from stress and grief, hungered to watch something thrive. Now, as they emerge from a nightmarish winter, Americans again are on their hands and knees, digging holes for their latest haul—largely unaware that the plants they buy, on rare occasions, risk fueling an ecological catastrophe.

In April 2019, an Indiana state nursery inspector noticed some suspicious brown spots on a rhododendron plant at a local Walmart. Over the next month, multiple rounds of testing confirmed that the plant was infected with the pathogen *Phytophthora ramorum*. In rhododendrons, camellias, and many other plants, the effects are fairly minor, but when it spreads to trees, it can be deadly.

Sudden Oak Death is estimated to have killed around 48 million trees on the West Coast—mostly tan oaks, coast live oaks, and California black oaks—since its presence was first reported in 1995. The spores of *P. ramorum*, a type of “water mold” that thrives in microscopic aquatic environments like plant tissue and soil moisture, can move through wind-tossed raindrops and ooze into hosts’ trunks, branches, or leaves, creating wound-like cankers that bleed dark red sap. Death can happen over a period of years. The disease is threatening tree populations

with immense dietary and cultural importance for several tribal nations in California and Oregon, including the Hoopa, Yurok, and Karuk tribes, and its long-term ecological effects, ranging from food-web disturbances to reduced carbon sequestration and possibly more intense fires, still aren't fully understood. And like many plant pathogens, *P. ramorum* has flourished in the nursery environment.

In 2002, *P. ramorum* became a federally regulated plant disease, under the aegis of the Agriculture Department's Animal and Plant Health Inspection Service, or USDA APHIS. So far, the epidemic is contained to the West Coast. But a 2008 USDA assessment concluded that the risk of *P. ramorum* spreading to other parts of the country with the right environmental conditions, and causing serious ecological disruption, is high. A recent study suggested that parts of the oak-filled Appalachians, like the Great Smoky Mountain National Park, could be especially vulnerable. "It could be an event of the magnitude of the chestnut blight back in the early 1900s," said Gary Lovett, a forest ecologist at the Cary Institute of Ecosystem Studies, recalling the fungus imported on an ornamental tree that effectively stamped out the American chestnut, a food- and wood-producing phenom often called "the redwood of the East." (The

founder of the newly-formed Oak Conservation Alliance has voiced similar worries.)

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Confirmation of the infected rhododendron in Indiana kicked off a frenzy of activity to determine where the infected plants came from and where they'd been sold. It became, APHIS later reported, "the largest trace-forward investigation for the *P. ramorum* program in any single year for over a decade." Many consumers have no idea that it even happened. But this isn't the first time this pathogen moved east through the plant trade. Under a regulatory framework that some have criticized as inadequate, it could potentially happen again.

Officials tracked the diseased rhododendrons to a shipment of around 200,000 plants from a plant broker—a kind of middleman that sources and distributes plants—in Oklahoma. That broker had also shipped to other stores around the country. In Indiana alone, infected plants were sent to over 70 Walmarts and 18 Rural King stores, the *Indianapolis Star* reported that May. But the Oklahoma broker had gotten plants

from another nursery in Washington. That nursery sent material to brokers in other states, too, said Megan Abraham, who runs the entomology and plant pathology division of the Indiana Department of Natural Resources. All told, according to USDA APHIS, these two facilities sent potentially infected plants to 28 states, mostly in the Midwest and Eastern United States.

As investigators retraced each of the steps and notified the other affected states, rhododendrons, lilacs, viburnums, and other plants found to be infected were destroyed, as federal protocol requires. According to APHIS, positive samples were eventually found in over 100 locations across 16 states. An eye-popping 14 million plants were inspected in Washington, and the Washington nursery obliterated thousands of plants via a steaming treatment that heats the soil to 122 degrees. Both source nurseries are now under federal oversight and have shipped no *ramorum*-positive plants since, according to APHIS.

APHIS says that states were encouraged to trace plants back to individual customers, where positive plants, when found, were destroyed and surrounding areas were monitored. Over that spring and summer, some notices were sent instructing customers to keep an eye out. “The

city advises if you believe you have an infected plant purchased from Walmart in the last few months, burn them if at all possible,” the *Great Bend Tribune* wrote in June 2019.

APHIS told me that no outbreaks of *P. ramorum* connected to the 2019 shipment were found in any waterways or natural areas across the Eastern U.S. And uncertainties remain around just how susceptible eastern landscapes might be. But the shipment was associated with a “lineage” of the pathogen—sort of like a Covid-19 variant—that’s new to the U.S., whose potential effects are not well understood, adding another layer of anxiety. Given that forest disease outbreaks can take some time to detect—and some of these plants, according to state officials and APHIS documents, were impossible to track down—it’s not clear we’d know if an infestation were already underway.

Plants, as products, seem to have evaded the reputation for harm that trails many other things we buy, like meat or plastic packaging or iPhones or healing crystals. But there are complicated networks behind your average backyard plant—of regulations and quarantines,

phytosanitary inspections and trace-back investigations, of industry groups arguing for release from regulatory burden. Live plants are welcoming environments for other living creatures. A rhododendron is not static, it is a world. And globally, the trade of “plants for planting” (i.e., plants that go in the ground, not the ones that live on your bookshelf) is considered a major and growing avenue for the spread of damaging non-native forest insects and diseases—another critical pathway being wood packaging materials.

Although most non-native species are harmless, a small number are killing lots of trees, in concert with climate impacts like wildfire, drought, and escalating native “pests” like bark beetles, as well as deforestation and other extractive legacies. Sudden Oak Death is just one problem among many. A federal quarantine program to prevent the spread of the emerald ash borer, for example, was recently ended in favor of biological control efforts, despite concerns from some state officials and tribal nations. Others species don’t kill directly but stress the tree, weakening it, explained Songlin Fei, a forest ecologist at Purdue. The so-called gypsy moth, imported by an entomologist in the nineteenth century, “goes through the forest almost like a fire,” stripping all the leaves.

Worldwide, the volume of ornamental plants getting transported around has increased. Plant imports into the U.S. are regulated more tightly (albeit imperfectly) than material moving around within the country, despite the U.S. being an unusually large country.

In the months following the 2019 *P. ramorum* incident, some began to question whether it indicated a broader problem.

Chain stores, Abraham said, may be most likely to use large brokers to buy large quantities of nursery stock, which ends up being cheaper for customers—but means that more material is traveling greater distances. (Walmart representatives did not respond to my request for comment for this piece.) Though they aren't the only ones behind long-distance plant movements—and in terms of pathogen-spread concerns, experts repeatedly flagged internet sales—in these box stores, “you have these incredible retail pathways or channels for plants to move long distances quickly and be distributed far-flung across the United States, and that increases the risk of pathogens being moved very quickly,” said Susan Frankel, a biologist for Sudden Oak Death research at the USDA Forest Service.

In the months following the 2019 *P. ramorum* incident, some began to question

whether it indicated a broader problem. The president of the National Plant Board, a nonprofit that represents state regulatory agencies, called for a review of the 2019 *P. ramorum* response and the federal program that's meant to prevent its spread. The infected shipment also caught the eye of Faith Campbell of the Center for Invasive Species Prevention, a vocal advocate for tighter restrictions on the plant trade who has written several blogs about the shipment and questioned the effectiveness of federal regulations.

Campbell suggested that the pathogen might have been caught earlier had restrictions on nurseries not been changed in 2014. "What lessons will APHIS learn from this disturbing event, and how will it adjust its program?" she wrote.

In March 2020, APHIS sent out an internal report, obtained by *The New Republic* via a Freedom of Information Act request, in response to the National Plant Board. The report acknowledged that clear and timely internal communication was an issue. Multiple state

officials said that plants associated with the shipment had already left with unsuspecting retail customers before inspectors got there; in some cases, few clues were left as to where the plants had gone.

But the report also noted that a 2014 federal order, later formally adopted as a deregulatory action, “may have contributed to what happened in the 2019 season.” Before 2014, all nurseries located in California, Oregon, and Washington had to be inspected specifically for *P. ramorum* before certain plants were allowed to ship out of state. Following orders issued in 2014 and 2015, USDA APHIS strengthened certain testing procedures and placed tight restrictions on nurseries that recently tested positive but allowed for fewer Western nurseries overall to be inspected for *P. ramorum* before shipping out. The point, according to the rule, was to relieve nurseries in areas that had faced broad restrictions, while still minimizing the risk from pathogens.

The Oregon Association of Nurseries helped write these changes, said Jeff Stone, executive director of the association, who delivered testimony to the Oregon State Legislature on the effort a few years ago. Beginning around 2005, “the regulatory scheme was pretty punishing,” he told me. The Oregon nursery industry did “a

lot of soul searching” over how to produce cleaner plants, and collaborated with the state’s disease management efforts. But OAN eventually felt that regulators were unfairly disadvantaging Western nurseries; a federal order requiring nurseries to notify recipient states when shipping higher-risk host plants did not go over well. As Stone tells it, at one point OAN members deliberately overloaded the state agriculture department’s notification system in a demonstration of displeasure.

“Prior to the 2014 and 2015 federal orders, we held several stakeholder meetings with industry, state departments of agriculture, and the National Plant Board to vet our approach,” an APHIS representative told me by email when I asked about OAN’s influence on the regulatory change. “This engagement should not be construed as industry participating in the writing of Federal Orders or regulations.”

During a 2018 comment period before the rule change was codified, a California state task force expressed concerns. “While we agree that these changes provide regulatory relief to nurseries,” the California Oak Mortality Task Force wrote, “we are not confident that it also ensures that nurseries that may pose a risk of disseminating *P. ramorum* through the interstate movement of regulated nursery stock are

adequately monitored.” The task force compared the new regulations to those that had been in place during a notorious event in 2004—when shipments involving over 150,000 potentially infected camellias were sent to nearly 40 states.

Matteo Garbelotto, a forest pathologist at U.C. Berkeley who has researched the connection between Sudden Oak Death and nursery stock, also questioned the regulatory change in a January phone interview. “I’m wondering whether relaxing the regulation is really the thing to do, is that really correct?” he said. “In my opinion, it’s not the way to go.”

A USDA APHIS representative said that new regulations are not currently being considered, though some policy changes have been made, and a broader review of the *P. ramorum* program is slated for completion later this year. “There have been questions raised by stakeholders whether switching approaches has contributed to increasing nursery stock detections,” the representative acknowledged. Overall, they said, different regions and organizations have different opinions on the level of risk involved and how to manage it.

That leaves individual gardeners, who often have no way to evaluate the plants they’re buying, in a tough position.

“The horticultural/ornamental plant business model results in a high likelihood of introducing exotic plant pathogens,” Garbelotto wrote in fall 2020 for the interdisciplinary project *Feral Atlas: The More-Than-Human Anthropocene*. Fixing that, though, is complicated.

“With so many plants and so few regulators overall, there’s going to be misses, there just is,” said Abraham. “But you’re hoping it’s not on a large scale like it was for the 2019 issue.”

Many people I spoke with pointed to the challenges facing APHIS, which balances an escalating barrage of costly diseases and the sometimes competing interests of trade, agriculture, and natural resources, as well as the quandaries and significant expenses nurseries face in chasing pathogens that can be very difficult to detect. “We have found that a lot of nurseries are stepping up their best management practices around plant disease in general,” said Cindy Cooper, plant services program manager at the Washington State Department of Agriculture. Those can include things like disinfecting tools, shifting irrigation techniques, and keeping water from pooling in plant beds. “I

can say that 20 years ago, nobody was talking about plant diseases, period.”

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There are other tools, in addition to regulations and better business practices, that can help mitigate disease risk. Vikki Preston, a cultural resources technician with the Department of Natural Resources for the Karuk Tribe in California, noted that *P. ramorum* tends to spread easily in brushy areas left overgrown by persistent colonial fire-suppression policies; on Karuk lands, Preston said, tribal and nontribal communities have been doing prescribed burns in part to improve ecosystem health and help prevent diseases like Sudden Oak Death, though significant federal barriers remain.

Consumers can, in theory, make more sustainable choices. When I asked, experts suggested that people buy plants-for-planting that are grown and sold locally. Growing from seed is another option. Buying online, especially from small vendors or hobbyists, is considered risky. Several nurseries are enrolled in a voluntary program, Systems Approach to Nursery Certification, meant to encourage cleaner practices. But often, when shopping for plants, it’s hard to know whether reasonable

disease-prevention steps were taken throughout a winding supply chain. And frankly, it's not your job to figure that out. "Conscious consumerism," as *The New Republic* has previously explored, can prove elusive in the absence of meaningful action from businesses and government.

The lesson of the 2019 rhododendron mess is not that people should panic about Sudden Oak Death, specifically. There are many important forest diseases and stressors, and nobody needs to give up their love of gardening. But if that incident is a representative example of how these issues are being managed and regulated, then perhaps, as Gabriel Popkin similarly argued in a recent *New York Times* op-ed, there ought to be more widespread concern about forest health.

Plant diseases, broadly speaking, are often described in terms of their invisibility. Even in forested areas, Sudden Oak Death, despite the splashy name, isn't as obvious as you might think.

"People look at that forest that's still green, and they say, Oh, well, the forest still looks OK to me," said Garbelotto, "and they don't realize that the keystone tree species that life depends on is not there anymore."