

*Brandel France de Bravo*

## IS THAT PLANT REACHING FOR MY THROAT? OR FIGMENT(S) OF IMAGINATION

*“Scientists are often uncomfortable talking about the role of metaphor and imagination in their work, yet scientific progress often depends on both.”*

—Michael Pollan

*“You show me a 50-foot wall and I’ll show you a 51-foot ladder.”*

—Janet Napolitano

On the property line between my small row house and my next door neighbor’s grows a Goldenrain tree. After it’s dropped all of its feathery yellow flowers, it produces seed pods like paper lanterns that pop and crunch beneath your feet. Native to China and Korea, the tree is considered invasive in many parts of the United States. One of its names is the Pride-of-India; my neighbor calls it “a trash tree.”

A few blocks away, another neighbor, Patterson Clark, makes paper, pigments, paintbrushes, cordage, printing blocks, and picture frames from invasive plants. When cooking the inner fiber of bark to make paper, he feeds his wood-burning stove non-native trees like white mulberry. The prints and wood carvings he creates, many with botanical references, are exquisite. In contrast to the hardiness of the invasive plants he “harvests,” the colors are delicate, ephemeral even. Since so many of the pigments—bush honeysuckle for pale blue—are his own inventions, Patterson can’t be certain how they will age. This makes my living room, where several of his pieces hang, a kind of laboratory.

The National Park Service defines invasive plants as “non-native species whose introduction does, or is likely to, cause economic or environmental harm or harm to human, animal, or plant health.” I can’t help but notice the order of

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harms, how plants come after humans and animals.

To invade means to go into or enter upon, but it also means to assail, assault, attack. To call “sessile” plants invasive implies intentional movement and malevolent intent, the latter presupposing a kind of human intelligence. It is as if invasive plants were hackers threatening the “wood-wide web.” As maligned as the Russians behind many of the most sophisticated electronic break-ins, they are *exotic* criminals.

Patterson is no vigilante, though. He received training from the Park Service and has a permit to remove invasive plants from federal lands and take them home with him. His website is called “Alien Weeds,” and while both words can connote disdain, my friend and neighbor has nothing but reverence for his harvest. Like the cannibal who eats his enemy to possess its powers, Patterson’s art is at once a sentencing and a tribute. The son of a botanist, with an undergraduate degree in biology and a Master’s in Fine Arts, he says, “I’ll measure my success by the scarcity of my materials.”

Will his supply ever dwindle? Some environmentalists argue that the war against non-native plants is fueled by naiveté or nostalgia and hinges on a perception of nature as diorama, as something we can contain for our own pleasure. They say that efforts to preserve ecosystems of yore are futile and costly. In response to this heterodoxy, the director of World Wildlife Federation’s Great Lakes office wrote in a letter to the *New York Times*: “Call me people-ist, but I prefer native species that don’t hurt me or kill me. So no more harmful invasive species, please!”

But there are plenty of plants native to the US that hurt and kill. Toast marshmallows over a campfire containing a leaf of poison ivy, and you might develop a painful rash in your lungs, causing blood to flood them and suffocate you. While people rarely die from ingesting jimson weed, it sends hundreds of teenagers to the emergency room every year. Staff are taught to suspect anti-

cholinergics like jimson weed—named for the Jamestown settlers who hallucinated for eleven days after ingesting it—whenever the patient is “blind as a bat, dry as a bone, red as a beet, mad as a hatter, and hot as a hare.” When Abraham Lincoln was nine, his mother drank milk from cows that had grazed on white snakeroot. Two weeks of the “trembles” and she was dead. Would our ecosystem fall apart if poison ivy, jimson weed, or white snakeroot were eradicated?

If a plant is going to murder me, I’m not sure I care where it comes from.

The Park Service and other government agencies charged with controlling the spread of invasive plants are less concerned about harm to humans than to the economy. Invasive flora and fauna cost the US an estimated \$120 billion a year, about half of which comes from damage to crops and livestock production, the plants and animals most easily monetized. According to the U.S. Fish and Wildlife Service, 45 percent of species protected by the Endangered Species Act, or at risk of becoming endangered, are vulnerable “due to displacement by, competition with, and predation by invasive species.”

Putting aside my feelings about poison ivy, extinction isn’t something I would wish on anything. Every extinction—a death worse than death—is a stain upon us. If humanity is an occupying army, who among us has not been a collaborator, whether through action or inaction? The resistance includes people like Patterson who march through the woods, taking green prisoners, as well as paleo geneticists who will struggle for decades to bring back passenger pigeons and woolly mammoths from a mass grave. But disappeared animals, totemic and freighted with childhood fantasies, inspire us more than extinct plants. I have yet to hear anyone mention bringing back big leaf scurf pea (d. 1899) or resurrecting *Thismia americana*, last seen in 1916.

Least of all the federal government, which is furiously spending money in hopes of losing less. In 2012 it shelled out \$2.2 billion to control the spread of invasive species and arm native species to fight back. What will happen if the

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government's efforts fail, if the bio-home team doesn't "man up"?



When we talk about invasive species, fear and fatalism inevitably creep in and wrap their tendrils around us. When we talk about them, it's hard not to hear echoes of other discussions—the ones going on all around us, simultaneously, as if on a continuous loop: our life expectancy is plummeting; our teenagers are outperformed in math by twenty-nine other countries; we don't manufacture anything anymore; we spend more per person on health care with worse outcomes than nearly every other country in the industrialized world; our infrastructure is falling apart; we don't have enough engineers. . . . The three words that emerge from our Babel of insecurity: *We can't compete.*

On April 1, 2005, when a federal court ruled that ships could not dump ballast water that might contain sea life from elsewhere without a permit, Rush Limbaugh famously said on his radio show:

*So invasive species like mollusks and spermatozoa are not good, and we've got a federal judge say, "You can't bring it in here," but invasive species in the form of illegal immigration is fine and dandy—bring 'em on, as many as possible, legalize them wherever we can, wherever they go, no matter what they clog up.*

With Limbaugh's voice fresh in your mind, read the characteristics of "invasive alien plants" from Virginia's Department of Conservation and Recreation:

- ♦ Rapid growth and maturity
- ♦ Prolific seed production
- ♦ Highly successful seed dispersal, germination and colonization
- ♦ Rampant vegetative spread

- ✦ Ability to out-compete native species
- ✦ High cost to remove or control

Anti-immigrationists would have us believe we can't compete because there are too many of *them*: they are used to low wages and tough conditions, and we're not. They would have us believe that these newcomers are choking our economy, that we have reached a tipping point.

I wish I could say I am immune to this kind of thinking.

I live in a neighborhood made up of owner-occupied homes and group rental houses inhabited by university students, or occasionally, young professionals. In zoning hearings, homeowners complained about noisy, drunken students, and insisted that the university house more students on campus instead of ejecting them into the community to be exploited by long-distance landlords who don't maintain their properties. The university students responded sarcastically: "The University's been here since 1789. You should have known when you bought here that you'd be living next to college students." The homeowners—and I was among them—said, of course, we knew. That's what attracted us to the area. We're here because we want to live in a mixed-age community where homeowners and renters live side by side, but, said the president of our neighborhood association who also happens to be Patterson's wife, "we've reached a tipping point." If too many homes become student rentals, she explained, homeowners will end up selling to the only buyers still interested—investors—and our "village in the city," as our neighborhood is known, will no longer be a mixed community.

Like communities, nature is always losing its equilibrium. If, as science writer Brian Switek says, "there is no such thing as 'the balance of nature,'" how should we respond to an ecosystem's dizzying changes? Some of us will widen our stance, a machete in either hand; some of us will lie down and bury our heads in the English ivy; and others of us will look up—as if nature's interrupters were giant beanstalks showing the way to new heights. When hungry outsiders

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shake up the environment, we may find ourselves sympathizing, even identifying with them.

Poets Beth Ann Fennelly and Saeed Jones have both found inspiration in kudzu, a plant brought to the United States from Japan 140 years ago, now dubbed “the vine that ate the South.” Born and raised in Illinois, Fennelly has adopted Mississippi as her home. She prefers its rutting heat, its life-giving and life-taking verdancy, like a snake swallowing its tail. Both Fennelly and Jones celebrate kudzu’s ruthless ambition, its immigrant drive to thrive. In her multipart poem “The Kudzu Chronicles,” Fennelly writes that kudzu:

*Sees every glass half full,  
pours itself in. Then over the brim.  
Scribbles in every margin  
with its green highlighter. Is begging  
to be measured . . .*

African American and gay, Jones was doubly an outsider growing up in North Texas. He wrote his poem “Kudzu” in Atlanta, where he lived for a time before making his home in New York City. In it, he assumes the voice of the voracious vine:

*All I’ve ever wanted  
was to kiss crevices, pry them open,  
and flourish within dew-slick  
hollows.  
How you mistake  
my affection.  
And if I ever strangled sparrows,  
it was only because I dreamed  
of better songs.*

Writers aren’t the only ones with an affinity for immigrant plants. Regions and whole nations have become enamored of botanical imports, arrivistes-turned-icons. The palm tree-on-stilts we’ve come to associate with Los Angeles isn’t a

native, and the prickly pear cactus, symbol of the Israeli character, was brought to the Mediterranean basin from the New World, most likely from Mexico. Transplants find kinship with transplants—for a time anyway. The fungus-ridden palms are now being replaced by plants more suitable to southern California: plants that provide shade and filter out pollution, plants that offer more than just looks. As for Israel's prickly pear, it's been beset by aphids—not local ones, but aphids from the Americas. Should we infer from this that non-natives will someday get their comeuppance?

Non-native plants are breaking the law—the one that says you have to bunk with your natural predator for life like cell mates. The problem is one person's criminal is another's outlaw, just as one person's terrorist is someone's freedom fighter, or one person's illegal immigrant is another's Dreamer. The problem is our economy might break down if it weren't for law-breakers. While testifying before a congressional subcommittee on immigration, comedian Stephen Colbert observed that “most soil is at ground level,” and until we can “make the earth waist-high,” few U.S. citizens will stoop to picking lettuce.



Efforts to control invasive plants sometimes seem as senseless as the war on drugs and the government stockpiling of personal data, or as senseless as the \$100 billion spent since 2001 on the border fence, concrete barriers, guards, predator drones, remote surveillance cameras, thermal imaging devices, train X-ray machines, and ground sensors—all to keep migrants from crossing our southern border.

Plants don't respect borders any more than people or animals do. In fact, many living things depend on porous borders, much the way our bodies depend on the exchange of gases. A border isn't a line, or what Euclid in ancient Greece called “a breadthless length.” It is an ecosystem.

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The 650-mile “fence” along our 2,000-mile border with Mexico has wreaked havoc on the borderland’s ecosystem, but it hasn’t stopped people from crossing. If you go to YouTube and type “Mexican border fence,” you’ll see all the ingenious ways in which migrants are circumventing this barrier. Others simply reroute, passing through larger swathes of desert, risking disorientation and dehydration. Thanks to the fence, 21,000 border guards, and the downturn in the U.S. economy beginning in 2008, the number of people caught crossing illegally from Mexico fell from 858,638 in 2007 to 365,000 in 2012. But during that same five-year period, the number of deaths rose from 398 to 476.

Besides contributing to the loss of human life, the fence is keeping jaguars, ocelots, puma, mule deer, and bighorn sheep from moving back and forth between habitats and accessing the genetic diversity necessary for their survival. According to Krista Schlyer, author of *Continental Divide: Wildlife, People and the Border Wall*:

*In the Organ Pipe Cactus National Monument, Sonoran toads have been observed and photographed jumping repeatedly against the border wall until they have either died of dehydration or were taken by predators.*

More disturbing still, the border fence may someday be internalized by Sonoran toads, altering their gene expression. German scientists have discovered that, two decades after the Iron Curtain fence separating Germany from the Czech Republic was taken down, red deer that never knew the physical barrier will stop where it once existed, refusing to cross.

But what do deer have to do with invasive plants, other than that they sometimes eat them? No matter how much I *want* to write about plants, people and animals keep horning in, pushing them out of the picture. As Stefano Mancuso, founder of the International Laboratory of Plant Neurobiology, notes in his TED Talk, Noah neglected to include any plants on the ark. Unless you are a botanist or tree hugger, the hierarchy tends to reassert itself: people, animals, plants.



Apparently, I need a metaphor, not just to talk about invasive plants, but plants in general. I need it the way an immigrant needs a “coyote” to get her safely to the “other side.” Maybe what I’m really looking for is a metaphor that allows me to talk about immigration and what it means to not belong or to strive for something different from what you were born to expect. Perhaps I’m at a cocktail party making small talk with a eucalyptus, but it’s the brown-skinned man in a baseball cap across the room who has caught my eye.

Like immigrants, plants don’t speak our language. Patterson says that unlike the rest of us, rainforest shamans understand the language of plants: “healers aren’t using trial and error to discover the medicinal properties of the thousands of species surrounding them—they’re communicating with the spirits of the plants.”

Plants speak in chemicals rather than sounds. When cut or otherwise threatened, they release ethylene, a gas-like plant hormone. In addition to being able to anesthetize predators, it acts as an SOS. Perfume is not, as Paul Valery wrote, “what the flowers throw away,” but a scented cry for help. With it, they can summon insects that will eat whatever is attacking them.

They may even be able to hear. The lab run by plant scientist Stefano Mancuso found that roots seek out a buried pipe through which water is flowing even if the exterior of the pipe is dry.

Like humans and animals, plants are able to adapt to conditions for which they were not genetically programmed. Coyote tobacco normally flowers at night when hawk moths are active, but these insects don’t just pollinate; they also leave behind eggs that hatch into tobacco plant-munching caterpillars. If there are too many caterpillars, then *Nicotiana attenuata* can change from night bloomer to early morning bloomer, attracting hummingbirds instead of hawk moths in as few as eight days.

Plants appear to learn from experience. In humans, we know that pain is adaptive. Do plants feel pain? Trees certainly “feel” kinship—restraining their own roots to accommodate those of a sibling—and engage in seemingly social be-

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haviors. They exploit sophisticated underground economies, including fungi that connect their roots, allowing for the exchange of information and goods. Via these networks, the trees warn each other about insect attacks, and when useful, engage in interspecies bartering. Parent trees tap into this resource to funnel carbon, nitrogen, and water to offspring too shaded to carry out their own photosynthesis. If it takes a village to raise a child, then it takes a forest to raise a sapling.

Above ground, plants may be using echolocation to decipher their surroundings like bats. A vine doesn't randomly reach, wasting energy with "thoughtless" movement, for something to grab onto: it senses what is nearby and able to sustain it. What little movement plants make—they are said to forage for nutrients—is planned. Not with a brain but with a host of competencies we don't fully fathom.

Plant intelligence—the phrase spawns debates—is not well understood or appreciated. If we have "misunderestimated" plants, it is because we are cerebrocentric. We privilege mammals over other animals because their brains most closely resemble ours, and animals over plants. Plants don't get their smarts from an organ headquarters. Their intelligence is decentralized, modular, and predicated on belonging to a network; they are a green version of the hive mind beloved by Internet users seeking an answer to a problem. But social media, like search engines and artificial intelligence, is a human creation. We can be proud of computers and take ownership of their accomplishments just as we do with our children. Plants, however, don't depend on us the way computers do. We depend on plants, and it is this dependence, says Michael Pollan, that "breeds a contempt for them."

Similarly, as much as we take pride in being a country built by immigrants, we are uncomfortable with our reliance on them, our inability to control them, and this manifests as contempt. Our dependence on immigrants—on anything, really—flies in the face of "USA No. 1" and our go-it-alone spirit. In a bid to win back the autonomy we never really had, some members of Congress want to double down: they propose building a second, backup fence that would cost up to \$15 million a mile.



Instead of creating robots or devices based on insects, animals, and humans—think android—Stefano Mancuso says we should be designing “plantoids.” Mancuso calls plants “the great symbol of modernity” because they are “able to create scalable networks of self-maintaining, self-operating, and self-repairing units.”

Immigrant communities, too, create networks to survive, and like those of certain forests, their networks are far-reaching—from other day laborers they’ve met, for example, while stationed in front of Home Depot, to parents and children thousands of miles away in their home country. Their networks are a source of information only immigrants would know or need: how not to be Honduran when crossing Mexico (pretend to be mute), and which phone calls about relatives held hostage in Mexico are scams and which require wiring money.

The undocumented rely on documented family members and friends to procure them loans, or they participate in informal credit unions, lending circles known as *tandas* or *cundinas*. The women who work as maids and nannies collect old clothes, appliances, and toys given to them by the families who employ them (families whose garages are perennially full of impulses, no-longer-fits, no-longer-wanted), which the women keep until a group of them is able to buy a share in a container and send the used items to the loved ones left behind. They supplement minimum-wage jobs in fast-food chains or as office cleaners by selling beauty products not found in stores to others who speak their language. Meanwhile, eight or nine leaf-blowers, meat-packers, dry-wallers share an efficiency apartment, rolling up their sleep mats each morning before selecting clothes for the day from black garbage-bag dressers.

In some senses, the network is a sign of, and compensates for, limitations, disabilities: the exquisite touch of the blind masseuse. Because plants can’t run away, they have highly developed defense mechanisms. Conversely, the network that is the immigrant’s safe house is also her house arrest. What sociologists call “ethnic closure” ghettoizes immigrants and prevents them from learning

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English while keeping them from being “disappeared” by the INS.

The act of leaving one’s country for a new one requires surmounting inertia and paralyzing fear; it requires resilience, creativity, and a willingness to reinvent oneself. Whether running from or toward, immigrants are risk-takers, social entrepreneurs even, who, regardless of their economic circumstances, represent uniquely valuable human capital lost by one country and gained by another.

If immigrants are what Charlie Sheen would call “winning,” the mania in his voice complicating the compliment, then couldn’t the same be said for invasive plants? When I asked Patterson if invasive plants have anything to teach us, he replied: “Invasive species seem to do very well in disturbed urban environments. In many ways, their tenacious, adaptable, overwhelming nature mirrors us.”

In invasive plants, we see our best and worst natures. We project onto them much as we demonize and romanticize immigrants. Patricia Engel, in her novel *It’s Not Love, It’s Paris*, writes that “immigrants are artists because they create a life, a future, from nothing but a dream. The immigrant’s life is art in its purest form.” This is immigration seen through a Vaseline-smear lens: the sharp corners of ethnic closure have been softened. While this take on immigration is ennobling, I have chosen to find inspiration in the equation’s reversal: all artists are immigrants.

In the title poem of my collection *Provenance*, the speaker—okay, me—expresses ambivalence about belonging anywhere and alludes to a habit of moving on. It is a pledge of allegiance to being a foreigner, a word with a rich etymology: “one from beyond the doors,” or “a carrier of forest.”

But is rejecting my provenance and claiming to never feel truly at home simply an attempt to prove my theorem? Is proclaiming outsidership when I’m so clearly an insider—now living in my native city, in the comfort of my skin color and economic status—a shallow way of cultivating an artistic temperament? Perhaps this is why, in my fifties, I am about to move again, start over, take root in different soil once more.

Mancuso says, “If you want to fly, look at the bird. . . . If you want to colonize new territory, the best thing you can do is be inspired by plants.”

Patterson is inspired by non-native plants and hopes that we can find ways to absorb their “strengths, so that we’re not left behind when our fellow weeds inherit the Earth.” And so, he invites these much maligned immigrants into his home, where he cleans them up and teaches them our ways. His is a settlement house. He makes invasive plants less threatening by turning them into art—a beauty we can more easily recognize.

