GRAVY

MAKING KUZU OUT OF KUDZU

When kudzu ate the South, why didn't the South eat kudzu?

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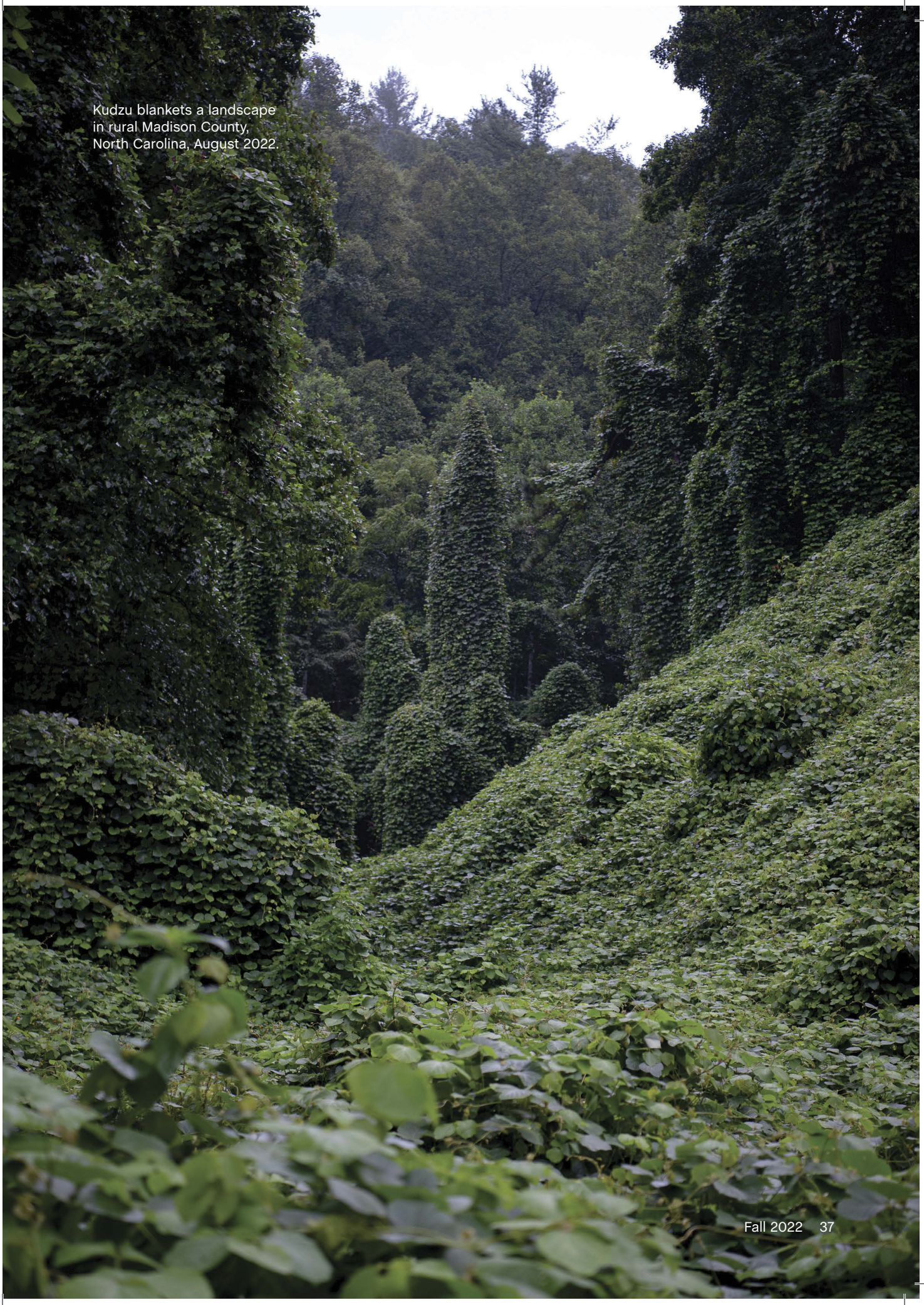
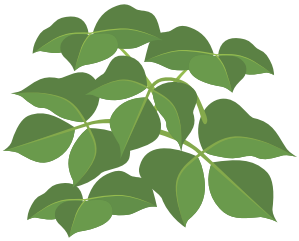


Kudzu blankets a landscape in rural Madison County, North Carolina, August 2022.

Lauren Bacchus (LB), a founder of Kudzu Culture, holds up a long, thin kudzu root that she harvested.



As a child raised to fear snakes, I knew better than to go near the kudzu.

It licked at the edges of the cul-de-sac where I played with the neighborhood kids; it scaled the power lines that rose above the forest behind my home. I grew up unafraid of the woods, never concerned with a tick or a newt. But kudzu? That was something different. Something invasive, something unrelenting.

These primordial fears are top of mind as I scale a steep, unmarked drive in rural western North Carolina. Dead leaves crunch underfoot as I realize I've steeled myself to meet a forest of green monsters, lithe and writhing with cottonmouths, a vision of kudzu in late summer. But now, in mid-December, all that surrounds me are dormant vines braided into a loose net over the hillside.

By the time Lauren Bacchus, the executive director of a local nonprofit called Kudzu Culture, joins me, I am no longer nervous. "You know," I say, gesturing wildly, "this is..." She finishes my thought before I do.

"Not scary?"

"Yeah," I say. "Not scary at all."

Bacchus—or LB, as she prefers to be called—has had this conversation many times before. A thirty-four-year-old North Carolina native, she's studied the attributes of this objectively useful plant. She begins to rattle them off for me. Erosion control, of course: the reason the Civilian Conservation Corps aggressively planted kudzu throughout the South in the 1930s. The roots have nitrogen-fixing qualities that replenish overused soil. Fibers from the spindly vines can be cured into hay, fed to cattle, or woven into textiles. In East Asia, where kudzu originated, as well as in holistic-health circles here in the United States, the root is understood to have myriad medicinal properties, from easing hangovers to healing snake bites.

In China, Korea, and Japan, foragers have understood these qualities for centuries, if not millennia. Community elders passed down their knowledge of how best to harness the legume's various functionalities, and, in turn, regular harvests in both summer and winter kept the perennial vine's growth contained. *Seikatsu roku*, a nineteenth century Japanese monograph on kudzu, celebrates the plant as a "useful thing... in useless places." But perhaps the most useful application of kudzu is the one most underexplored in the West: the production of kudzu starch.

Kudzu powder, known as *kuzu-ko* in Japanese and usually shortened to "kuzu" in English, has been commercially manufactured in Japan since at least the early seventeenth century. An adaptable gelling agent, kuzu is traditionally used to thicken sauces and add body to custard-like desserts, in place of similar powders such as arrowroot, cornstarch, or gelatin. Many wagashi, traditional Japanese confections, rely on kudzu powder, like kuzu-dama, a red-bean cake coated with the starch. It appears in savory preparations as well, such as in goma dofu, a gelatinous, tofu-like block flavored with sesame; and ankake, an unctuous sauce poured over stir-fries.

Although kudzu grows across varied climates and terrains, certain conditions create the best kuzu. The roots are at their starchiest in winter; after the greenery collapses, the plant draws nutrients back into its root network to survive a season of dormancy. The colder the winter, the more starch each tuber produces. According to *The Book of Kudzu*, the definitive English-language guide to kudzu, production is optimized when plants are grown with ample sunlight around a latitude of thirty-four degrees north, typically on steep mountains that climb to about 2,500 feet in elevation.

Standing on this peak of sleeping kudzu in Madison County, North Carolina, I check my phone. We're roughly 2,600 feet above sea level, looking down over small farmsteads and fields. Some are clearly in use, while others appear overgrown. Our latitude is thirty-five degrees north. This high in the Blue Ridge Mountains, there's little topographically induced shade. On this crisp, clear day, with the trees mere skeletons of themselves, it seems as though the sunshine could find you in the deepest part of the forest.

"Around Nara and Yoshino [in Japan], where the best kudzu starch comes from," LB says with a grin, "it looks just like this."

KUDZU'S OVERGROWN American tenure has been well-documented. First imported as an ornamental in the 1870s, wealthy planters up and down the East Coast prized the vine for its tropical ambiance. They trained the dense foliage to climb porch railings and fence posts to foster both shade and privacy. Early adopters, such as Quaker conversationist Charles Pleas, immediately noted the vine's rapid growth. By 1917, researchers at the Agricultural Experiment Station in Auburn, Alabama, were studying kudzu's usefulness as cattle fodder. Although farmers were initially skeptical of the zealous crop, by the early 1930s, the South's malnourished soil was in need of large-scale intervention.

As ethnobotanist and retired North Carolina Cooperative Extension agent David Cozzo later explained to me, in much of the South—such as in the Georgia Piedmont—there was more than eleven inches of rich topsoil covering the ground when commercial agriculture began to spread in the eighteenth and nineteenth centuries. Southern planters' commitment to monocropping, whether cotton or tobacco, left the earth stripped of nutrients and vulnerable to erosion. "All this topsoil, by the 1950s, was in the river[s]. It washed off the land and left nothing but red clay," he says. "If it wasn't for exotic, invasive species, there wouldn't be any plants left in the Piedmont."

In 1935, the Secretary of Agriculture formed the Soil Conservation Service (SCS), an agency dedicated to combating widespread erosion. Under SCS guidance, federal workers began planting imported kudzu shoots on thousands of acres of demonstration plots from Virginia to Alabama. Highway departments sowed kudzu on rights-of-way, while railroad companies embedded young vines into crumbling train tracks. The SCS even paid farmers eight dollars an acre to plant it on their own land, shipping seedings directly to growers' doors. By 1939, kudzu had taken root in every state in the American South.

Then, of course, the flowering vine adapted far too well. Following World War II, agriculture became increasingly mechanized, requiring equipment that most homesteads were unable to afford. Automation, in turn, led to widespread job loss, as farms no longer required the same workforce they had only a few years prior. As folks fled to the cities in search of new opportunities, kudzu crept into the rural lands left behind. And without any other long-term intention for its use

While scientists have repeatedly found positive attributes hidden beneath the mass of tri-tipped leaves—from its availability as a biofuel to its usefulness in regulating blood pressure levels—these findings have done little to change kudzu's weedy reputation.

ABOVE: LB makes kuzuyu, a hot beverage used as a remedy for colds, hangovers, and other ailments.
LEFT: Through several rounds of soaking and drying, kudzu root (top) becomes kudzu starch, or kuzu (left).

beyond erosion control, kudzu spread unchecked. (Natural predators that often attack new-growth kudzu, such as hungry deer and the aptly named kudzu bug, were not yet plentiful enough in North America to make much difference.) Public and scientific favor quickly turned against the vine, and in 1953 the USDA quietly removed kudzu from its list of promoted cover crops. Alabama outlawed the possession of kudzu seeds in the 1960s, and states from Florida to Massachusetts followed suit. Congress added kudzu to the Federal Noxious Weed List in 1997, and in 1999 *Time* Magazine declared its widespread cultivation one of "The 100 Worst Ideas of the Century."

AS LB AND I CLIMB back down the steep trail, she stops to point out each individual part of the legume: the root crowns embedded in the dirt, smelling herbal and pungent; the blanket of brittle, intricate vines atop them; the seed pods crowning the growth, the only visible sign of the vine's blossoms remaining in December. "In one generation," she says, "we lost the little bit of cultural value it had."

In the modern American consciousness, kudzu arrived on our shores with malintent. Georgia lore said that if you didn't close your windows at night, kudzu's slender fingers would creep in while you slept. These anxieties are so ubiquitous, they've become a punchline: Lewis Grizzard once joked that the leaves could cover an entire house in a single evening, before musing, "Those who try to eat their way out of kudzu quickly have their innards entangled in the vine because no matter how much you chew it, the blamed stuff just keeps on growing." While scientists have repeatedly found positive attributes hidden beneath the mass of tri-tipped leaves—from its availability as a biofuel to its usefulness in regulating blood pressure levels—these findings have done little to change kudzu's weedy reputation.

But where Americans tend to revile kudzu, others see great potential. Japanese kuzu producers have historically foraged, rather than cultivated,

kudzu. But in 1990, Inoue Tengyokudo, a century-old kuzu producer based in Nara, Japan, purchased 165 acres of land in Lee County, Alabama. Less than thirty miles from where Auburn's Agricultural Extension was then researching how to loosen the vine's grip on the region, the conglomerate planned to open the world's first kudzu farm. But harvesting kudzu roots is labor-intensive and best done by hand, in part because the roots tend to become tangled with their underground neighbors. The Tengyokudo experiment proved a swift failure. "They grew some good kudzu," Auburn University agronomist John Everest told the Athens alt-weekly *Flagpole* in 1999. "The deer wiped the company out."

For 150 years, kudzu has remained anchored in Southern soil—an ornament, a miracle, a pest. It has been over-planted and underutilized, loved and loathed. But, throughout its American tenure, kudzu has never been what LB and the rest of Kudzu Culture understand it to be: an opportunity to find balance, both ecologically and economically.

Kudzu Culture began in 2011 as a loosely organized group of neighbors and friends with the mission, as they playfully put it, of "eating the vine that ate the South." Initially led by Zev Friedman and Justin Holt, two western North Carolina-based permaculture educators, the pair were drawn together by their shared interest in designing ecologically diverse and resilient communities. Friedman and Holt would host biannual, three-day events called Kudzu Camps, where they invited community members to learn the intricacies of processing the different parts of the plant. In winter, they dug out the roots for starch extraction; in summer, they harvested everything from the vines to the flowers for a variety of craft and culinary applications, such as baskets, jellies, and woven garments. LB, a fiber artist long interested in creating textiles from kudzu vines, connected with the group after she moved to the area from her hometown of Davidson, North Carolina. In the years since, the trio has been brainstorming how best to

BELOW: LB demonstrates weaving with kudzu vines. RIGHT: Bột sắn dây, a cold drink from Thailand, is similar to limeade and thickened with kudzu starch.

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provide comprehensive, year-round education and training resources for local people to work with the plant, rather than against it.

Their interest in kudzu is not solely motivated by profit or scientific discovery, but rather by what they see as a gap in their community. Now a nonprofit, Kudzu Culture educates rural residents about the cash crop growing just outside their door. "Kudzu grows in places that are often poor areas, where the land has been devalued and used historically for extractive practices," LB explained later over Zoom, citing logging, overgrazing, and coal mining in Appalachian communities. It is one of the only plants that can grow in abandoned mine spoils, of which there are more than 4,000 in western North Carolina alone. "There's an opportunity to work with smaller communities who have been greatly affected by other economic forces, and then who, simultaneously, are experiencing an overabundance of kudzu growth." If successful, these foraging techniques could also help keep the plant's regional expansion under control.

However, making kuzu is far from easy work. Rhizome extraction is a delicate and labor-intensive event, as the starch-rich root crowns can be more than six feet in length, seven inches in diameter, and weigh more than 400 pounds. Each root must be individually dug out by hand: Any cuts made directly into the tubers' flesh enable starch fermentation, significantly lowering the quality of the final product. But, if properly produced, kuzu can be valuable—Cozzo says he last saw it retailing for thirty-six dollars a pound in an Asheville health-food store before the pandemic, while LB recently found it selling for more than sixty dollars a pound online—in part because it is incredibly expensive to make, especially on a commercial scale.

Whether on a Japanese mountainside or a western North Carolina farmstead, kuzu production is generally the same: After careful unearthing, processers crush each root and submerge them in water before sieving the slurry to remove any large fibers. The remaining thick, milky solution stands until the heavy starch sinks to the bottom, while the impurities and other unwanted particles rise to the top. Once this cloudy liquid is removed, the starch is re-washed and allowed to settle again. This process is repeated continuously until only pure white starch remains. Cold water and cold weather ensure that the starch does not ferment throughout this process, which in a traditional, family-owned Japanese shop can take up to ninety days.

Kudzu Culture first experimented with refining starch using whatever equipment they had access to, from simple buckets to a repurposed old washing machine. ("The centrifuge helps to separate that heavier matter from the liquid," LB explains.) But to sell kuzu commercially, they'd need USDA certification. To avoid the financial investment of purchasing industrial, food-safe shredding and extraction machines, the team hoped to find a "white label" producer—a pre-existing potato- or cornstarch manufacturer that would process the foraged kudzu roots in exchange for a cut of profits. But, as LB found, all American-based starch processing facilities were owned by one of a handful of big corporations, and the trio was unwilling to pursue a contract with a multinational conglomerate. Apart from independent artisans, "domestically, there's no kudzu starch producer or kudzu fiber producer

other than us right now," she says.

While a handful of family-owned kuzu producers still exist in Japan, in the last half-century the global forces of industrialization and agricultural consolidation have also affected kuzu production in Japan. Only a fraction of the kuzu businesses that existed before World War II are still in operation, and younger generations do not have the same understanding of starch production their forebearers did. With fewer foragers to keep root growth in check, kudzu has started to exhibit invasive growth patterns in some areas—meaning it's begun to eat Japan, too.

Although the number of kuzu producers has fallen greatly in the last fifty years, globally, demand has continued to rise. Health food stores across the United States started carrying kuzu in the 1960s, as holistically minded consumers began to seek out more traditional forms of medicine. Many were inspired by the healing properties the starch was supposed to store. (Cozzo, who is originally from New York, says he encountered the powdered root in macrobiotic food stores more than a decade before he ever glimpsed a thicket of kudzu.) The influx of East Asian immigrants and refugees in the late twentieth century increased the demand for kuzu, which can be found today in many international grocery stores.

Kudzu isn't going anywhere. Rather than work to eradicate it, why not try to understand the latent possibilities it holds?

In recent years, a handful of restaurateurs across the South have begun to grasp the culinary possibilities of the invasive plant. Kudzu Culture previously sold kuzu to Sean Brock in an experimental capacity. Brock, the Nashville-based owner of Audrey, is one of several chefs interested in the possibilities of a locally produced, Southern starch. Other culinarians infuse teas with kudzu flowers, long clusters of grape-scented petals that Southern women have traditionally turned into jelly. Asheville-based Shanti Elixirs already brews kudzu jun, a fermented tea similar to kombucha, using Kudzu Culture's foraged goods. Shanti Elixirs currently sells two seasonal products: a kudzu-dandelion-chicory drink in colder months, and a summertime brew flavored with Asian pears, ginger, and kudzu blossoms.

Does kudzu have the potential to become a staple ingredient in restaurant kitchens across the South? Kudzu Culture thinks so. Still, the group has had trouble securing funding over the years, largely because of kudzu's invasive reputation. But oft-cited numbers purporting that kudzu covers somewhere between seven and nine million acres across the United States have come under recent scrutiny. Assessments from the United States Forest Service estimate the total figure at less than a million acres. (By comparison, privet, brought to America in the 1700s as an ornamental hedge, now grows on more than three million acres across the country.) Kudzu Culture finally received their first grant earlier this year from the Educational Foundation of America, a $20,000 investment toward creating a community starch processing facility near Asheville.

While they work to commercialize their kuzu operation, Kudzu Culture is planning farmer-harvester trainings that teach interested folks how to appropriately excavate, clean, and process the roots for starch. If an individual wants to harvest on their own land, the group will perform a site visit to certify that the kudzu is grown in uncontaminated soil. Once harvested, Kudzu Culture will buy the roots from people in the community as part of their "Root Buy-Back" program. As of August 2022, they're paying three dollars a pound. They purchased about 150 pounds of roots from local residents in the first year of the initiative.

This sort of work has a historic precedent in western North Carolina. Cozzo studied the root digger economy, where locals have long supplemented their income with wild foraging. "That type of economy thrives in a low-income area," he says. "While you're out hunting, you go gather some ginseng. Then, at the end of the season, you'd sell your ginseng and that'd pay your property taxes for the year." Whole families and sometimes entire towns would gather ginseng and other medicinal roots, similar to how multiple generations would harvest kudzu together in Japan.

Kudzu Culture doesn't expect this work to be a quick fix or a wholesale salve to the larger historic and systemic problems rural western North Carolina communities are up against, such as land degradation and limited economic opportunities.

LB stands on a mountainside in Madison County, NC. She uses the machete to harvest kudzu roots and vines.

Rather, it's a generations-long quest to replicate the balanced ecological systems that sustained communities both here and in Japan for centuries. In the short term, the group sees it as a way to engage with longtime residents and provide direct access to capital, all while pushing Southerners to engage with their natural surroundings differently—no matter if the flora is invasive or native, abundant or ephemeral.

"Abundant species" is a term LB relies on, as she finds it contains more possibility and less prejudice than a word like "invasive." Besides, as she tells me, "The vilification of abundant plants at this stage of the Anthropocene"—a reference to the modern environmental era defined by human presence—"is missing the point." In other words, kudzu isn't going anywhere. Rather than work to eradicate it, why not try to understand the latent possibilities it holds?

"That's the important thing not to miss," LB says as Japanese knotweed, another imported species, whistles in the December breeze. "We have opportunities to heal through humility." She's speaking of the humility to reexamine misunderstood history, to confront long-held prejudices, and to look to the future for answers, rather than to an idealized past. As people across the South, and across the world, grapple with the inequalities wrought by land misuse and rising temperatures, LB believes this kind of reframing will become key to forming strong, adaptable communities. But for now, she'll settle for kudzu.

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