The **MISSION** of Mad Agriculture is to reimagine and restore our relationship with Earth through agriculture.

The **PURPOSE** of the Mad Agriculture Journal is to explore and create the new agrarian culture. It is dedicated to living the questions, trusting that in the living we will find the answers.
Arina Abbott

Arina Abbott is a photographer, writer, and outdoor professional based in Seattle and Tbilisi, Georgia. Whether in the Cascades or the Caucasus, she is dedicated to uncovering and sharing nature’s delights at every turn. You can keep up with her on Instagram @arinaabbott and on her website: www.arinaabbott.com.

Emily Payne

Emily is a writer focusing on the intersection of food, agriculture, health, and the environment. She’s served as editor for sustainable food nonprofit Food Tank since 2015 and is currently Head of Product and Content at Manolin, a tech startup working to build more sustainable aquaculture systems. She’s based in Denver, Colorado.

Lena Miller

Lena grew up in Berkeley, California in a family with a deep appreciation for cooking, community, and ceremony around mealtimes. She studied Global Environmental Change and Sustainability at Johns Hopkins University, and there began her investigation of the food systems of Baltimore and beyond. She moved to Boulder, Colorado in 2008 to direct Meadowlark Farm Dinners and has been entrenched in the culinary scene ever since.

Elizabeth Black

Elizabeth Black produces the Citizen Science Soil Health Project and grows trees and veggies at Your Neighborhood Christmas Tree Farm in Boulder.

Quivira Coalition

Eva Stricker, Jess Robinson, and Reid Hensen wrote their contribution on behalf of the Quivira Coalition. The Quivira Coalition builds soil, biodiversity, and resilience on western working landscapes. Quivira fosters ecological, economic, and social health through education, innovation, and collaboration.

Caroline Barry

Caroline Barry is a graduate student at the University of Colorado Boulder where she is pursuing her master’s degree in sustainable food systems. She just completed her spring 2021 internship with Rodale Institute, where she focused on content and media relations. She plans to use her experience and education to generate a global narrative around our food system, with the goal of promoting a more equitable and resilient planet, and ultimately, a more nourishing human experience.

Johnie Gall

Johnie Gall is a writer, photographer, and environmental advocate who has been penning work for various outdoor publications and brands for the better part of a decade. She’s the founder of Dirtbag Darling, and splits her time between coasts and the back of the Sprinter van she rebuilt with her husband. Notebook in hand, she’s a professional storyteller on a perpetual search for inspiration, from the wild peaks of the New Zealand backcountry to the silty canyons of Big Bend.

Rebecca Stumpf

Rebecca Stumpf is an American editorial photographer specializing in travel, portraiture and documentary photography. Her passion in telling visual stories lies in understanding the connection between people and nature - how they are inspired by it and the greater world around them; how they work with it; how they connect with it; how they experience it; and the creative space between the two.

Lizzy Elliott

Lizzy Elliott (she/her) is a food activist, potter, photographer, and cook who is committed to creating a more just and sustainable food system. Growing up in the San Francisco Bay Area on Ohlone and Miwok land, Lizzy leverages the power of food to share stories, raise awareness, and create beauty. She recently completed a master’s of gastronomy from Italy’s Slow Food University of Gastronomic Sciences. Lizzy is currently working to implement a food relief program called Growing the Table across California, and hopes to help improve food policy through grassroots change.
Dear Reader,

One of the great disasters of colonization is the loss of story, memory, and the ensuing trauma of broken relationships that leave wounds open or create scars that become hard to see, and even more difficult to heal. Living roughshod in a place disorients history, and creates a blindness to the past that uninges our responsibility and accountability to what people and place need us to be for equity and beauty to thrive.

I’ve lived in Colorado for 13 years and confess that I hardly know the place. As an ecologist and general lover of place, I find it remarkable how much I feel like a fish out of water, despite my intentionality in being here. In short, I’m learning that it takes generations to discover and live in right relationship. And it’s not up to me to decide, but requires a communal effort that creates and relies on story, song, ritual, observation, tending, experimentation and more, which must evolve over time.

Many of us have trail-blazed across sea, country and culture, without developing a firm tether to the places and people we depend on. For me, this behavior stems from colonization and the notion that there is more freedom and opportunity beyond the place I currently am. I’ve moved around the country in pursuit of professional aspirations and curiosity of the West. Whether my meanderings are ‘good’ or ‘bad’ is for another debate. Through it all, I have noticed that in moving there is a danger of further disconnection from the natural world. I think this occurs at the personal and civilization scale. It is easy to live almost wholly within the artificial systems we’ve created to buffer ourselves against being in nature. Our enjoyment of nature often reduces to exercise, yoga or hiking, and other cerebral efforts, like thinking about how driving cars and climate change might influence snowpack or conflicts in Africa.

It is rare for people to know the soil, birds, algae, lichen and the intricacies of ecosystems we live and breathe in. We lose more than we can appreciate when we uproot, abandoning deeper stories for the sake of progress, and rarely return to the act of understanding our place, which takes time, patience, curiosity and lots of questioning.

I’ve been learning that story is the foundation of wise existence. As Dr. Clarissa Pinkola Estes writes, ‘Story is far older than art and science, and will always be the elder in the equation no matter how much time passes.’ If I’ve learned anything in the past year, it is the importance of listening to elders and those we cannot often see because of privilege. There are many types of stories. Over the past few years I’ve been drawn to the stories of my non-human neighbors hurt by agriculture.

Agriculture is currently the most destructive force on the planet, and stands as the
greatest driver of climate change, biodiversity loss, habitat destruction, soil erosion, labor injustice and so much more. If we hope to heal our relationship to Earth, we must begin with agriculture, the nexus point between human and planetary health. I think we need to begin with the stories of the things we’ve trampled, exterminated and displaced, which I explore in my essay Animal Hats.

A dear friend recently handed me a small book by Albert Schweitzer, a remarkable polymath that won the Nobel Peace Prize in 1956. He calls for a boundless ethic of compassion and care for all living things based in Reverence for Life;

“Profound love demand a deep conception and out of this develops reverence for the mystery of life. It brings us close to all beings. To the poorest and smallest, as well as all others. We recite the idea that man ‘master of other creatures,’ ‘lord’ above all others. We bow to reality. We no longer say that there are meaningless existences with which we can deal as we please. We recognize that all existence is a mystery, like our own existence. The poor fly which we would like to kill with our hands has come into existence like ourselves. It knows anxiety, it knows hopeful happiness, it knows fear of not existing anymore. Has any so far been to create a fly? That is why your neighbor is not only man; my neighbor is a creature like myself, subject to the same joys, the same fears, and the idea of Reverence for Life gives us something more profound and mightier than the idea of humanisms. It includes all living beings.”

Albert calls us to an ethic that sees all living things as neighbors, and asks us to found our relationships on a more expansive love. This idea is powerful because we cherish what we love. We fight, defend and protect for what we love. We care for what we love.

Loving isn’t always convenient. In fact, loving is hard work. Love is a matter of choice. It requires attention, vulnerability, commitment, and doing things that you don’t want to do. Humans have forgotten what is most important to love. We must not withdraw from the realms of suffering, but rather lean toward it.

How can we protect, preserve, steward and heal what we do not understand? How do we care for what we do not know? How do we look back and forward at the same time, given where we are?

I think it would be fruitful to first remember what has been lost, and hopefully, in our collective remembering we begin to construct a boundless ethic that seeks equity for all. This process begins with observing, listening and sharing what we find. In this journal, I share a few stories of the species I’ve connected with, and who have shaped my life. I encourage you to do the same. I honor them, their stories and their place, as fellow neighbors on planet Earth.

Madly,

Phil
When Terry deGroot returned to Kersey, Colorado, in 2017 after serving in the U.S. Navy, the family dairy farm was going broke.

Terry’s father, William, was milking around 1,100 Holstein cows for a conventional dairy buyer at the time. The farm had generated a profit just 3 of the last 10 years. William knew that they couldn’t continue with current operations.

“We didn’t like how we were doing it, anyway,” Terry says. “When a farmer goes and looks at their animals, they want to see that they’re happy and healthy. Our animals weren’t. We could just see it in their eyes.”

William had refused to use hormones for his first eight years of raising cattle. Giving an animal a hormone is forcing them to do something that their body doesn’t want to do, he says. But in the conventional dairy business, it’s efficiency over everything. A consultant told William the blunt truth: it didn’t matter how he wanted to operate, he would have to use hormones to produce more milk and keep up with competition, or the farm would go out of business.

By 2019, the deGroots had nothing to lose. William and Terry had grown interested in an endangered breed of heritage cattle called Guernsey, which is known to produce richer, creamier, and better-quality milk than the conventional Holstein. They purchased a couple of Guernsey calves to experiment with another way of dairy farming.

Today, the family—Terry, William, Julia, and Tabitha—raises just 80 Guernsey cattle that graze 100 acres on their regenerative dairy farm, Colorado Cow. Their milk is sold in Natural Grocers and Whole Foods stores across the front range and produced into an artisan cheese through Longmont-based Haystack Mountain Creamery.

“We turned into farmers again,” Terry says. But when the deGroots sold off their entire Holstein herd just more than a year ago, the family was taking a leap of faith towards a better way of farming—and they had no idea how to begin.

DEGROOT DAIRY

A leap of faith towards a better way of raising cattle

Emily Payne

America farms more than 8 million Holstein cattle and fewer than 2,500 Guernsey cattle. While the U.S. Guernsey population has always been small, its numbers have steadily declined since the U.S. Department of Agriculture (USDA) tallied 44,000 Guernsey cattle in 1930. Dairy prices favor the volume of milk produced, so the industry has come to rely on high-output Holsteins, which have been bred for mass production for decades now.

Guernsey is a quality, not quantity breed, Terry explains. According to the USDA, the average dairy cow in the U.S. produced more than 23,000 pounds of milk in 2019, while a Guernsey cow typically produces between 14,000 and 16,000 pounds per year. Terry remembers finding at their first milking that the Guernsey milk didn’t even fill their system’s lines to reach the tank.

Guernsey cattle are strong yet more sensitive, fragile, and difficult to manage than Holsteins. “They’re like big babies,” Terry says, laughing. He initially tried to integrate their new Guernsey calves into the Holstein herd, quickly realizing that this breed wouldn’t fare well in an industrial setting. Guernsey cattle thrive in a grazing system, but “grazing animals on a dairy farm is unheard of,” Terry explains.

Shortly after starting on this journey, the deGroots made a well-timed connection: a Cleveland, Ohio-based company called Origin Dairy happened to be working to create the first Guernsey dairy in Colorado.

Origin Founders Adrian and Lauren Bota hope to lead a shift from industrialized to regenerative, organic, and localized dairy systems—what they call “clean dairy”—by bringing Guernsey milk to grocery shelves. For them, this means working with small farms like Colorado Cow looking to downsize their operation for healthier land, happier cattle, and better-quality milk.

Guernsey milk is notably higher in fat, protein, and nutrients like calcium, vitamin A, and vitamin D than conventional Holstein milk, and its high beta-carotene content gives it a
distinct golden tint. But its claim to fame in recent years goes beyond superior nutrition and flavor; many say Guernsey milk is easier to digest.

The key difference is in beta-casein, one of the main types of protein found in milk. The average grocery store milk contains both A1 and A2 beta-casein. Historians say that A2 was the original variety—contrary to its name—and A1 began appearing somewhere around 8,000 years ago. Over years of breeding for mass production, Holsteins have become higher in A1 protein, while Guernsey have retained mostly A2. According to Origin, this means A2 milk is more similar to what humans drank before intensive dairy farming began.

Origin knew how to bring the Guernsey milk to market, but the deGroots were rebuilding their business from the ground up. The transition from conventional management to the intensive grazing system necessary for the Guernsey cattle is complex—and for dairy farmers running on thin margins, risky. This is where Mad Agriculture came in with boots on the ground.

“We were terrified at first,” Terry remembers, laughing: “We thought, will the cow come back if we let her out to graze?”

Terry had been manager over the larger dairy team for so long that he barely knew how to milk a cow, he says. With the support of a Conservation Innovation Grant from the State of Colorado, Mad Agriculture brought in Willie Reid, an expert grazing affiliate and soil educator. Willie has practiced bio-dynamic agriculture and holistically managed dairy cows for many years—a sharp departure from the industrial management of the deGroots’ region. He showed Terry the basics of stewarding the land with dairy farming, rather than degrading it.

“They treat the soil the way we treat our animals,” Terry says. “It’s much more complex than we had realized.”

The team first showed Terry corners of his farm where soil health damage was stark: the ground was green where it had been left alone, and yellow where they were disk ing each year. With a two-day crash course, Terry learned about methods like no-till and restorative cover crop mixes to build soil health and re-perennialize the pastures. He practiced building a fence for a paddock system, which rotationally grazes the cattle to allow soil to regenerate, sequestering carbon and giving rise to more nutritious grass for the cattle.

The land showed signs of change almost immediately. Terry remembers putting cattle out on the pasture one morning, shortly after they stopped disk ing their soil, and noticing the sound of crickets. “I couldn’t remember ever hearing crickets before,” he shares. “We see soil health through the animals coming back—the bunnies, the bugs—those are things we look for now.”

The complex transition to holistic management was only part of the challenge, though. The deGroots still weren’t certain that they would be able to sell their new product.

“When day one came and we bottled the milk, we were terrified,” Terry says. The family had sold off their entire herd of Holstein cattle and were working with just 14 Guernsey at the time.

These first Guernsey milk bottles were sold at 40 Natural Grocers stores through Origin’s partnership, but it wasn’t until the second and third orders came in that Terry knew they were onto something: “That meant somebody had bought it, and they were going to buy it again.”

In the meantime, no longer milking at all hours means he’s sleeping at night. He spends more time with both his animals and his children—a three-year-old, four-year-old, and baby on the way.

“They let an animal out on pasture, and they jump, kick, and go crazy,” Terry says. “That’s one of the best parts. We let the cows out and get to watch them act like actual cows.”
"I think we all have this preconceived notion about what being an organic farmer is, and I think we can fantasize about that—but you cannot fully comprehend what you’re getting into just by watching YouTube videos and reading."

For the next generation of farmers to succeed, we must revitalize our investment strategies. The folks at Mad Agriculture know that money is one of the most important factors in decision making on a farm, but investment doesn’t solely mean monetary inputs. Farming demands time, energy and resources. It also requires knowledge, training and backing. We need investors who can nourish farm operations from the ground up, but we mustn’t overlook one of the most valuable assets we have: our farmers. Rodale Institute is amplifying the farming revolution by reimagining the ways in which they support beginning and transitioning farmers, through training programs, consulting and investing in land access.

Boots On The Ground, Hands In The Dirt

Nick Karnaze knew he needed to gain real-world experience to pursue his dream of being an organic farmer. That’s why, in the spring of 2021, he found himself at Rodale Institute’s headquarters in Kutztown, PA participating in the organization’s Veteran Farmer Training program. The agenda? Find out what it really means to get your hands dirty.

Karnaze’s introduction to the importance of agriculture was unconventional from the start. “When I was deployed to western Afghanistan, I ended up working with a USDA foreign service officer and we did a project to help support local entrepreneurs,” he said. “The soil out there, because of the war, had just gone to heck, and that really opened my eyes to the importance of agriculture and proper management.” When Karnaze returned from Afghanistan, he didn’t know his next step to continue his journey in farming.

Children’s books taught us that anyone can grow a vegetable with a single seed, some water, bright sunshine, and a bit of dirt. The reality is that farming requires resources, training, mentors, and so much more. While books, videos, and workshops can provide some of those tools, it’s up to the farming community to ensure the integration and operationalization of these resources for beginning organic farmers.

Rodale Institute’s beginning farmer training programs, which include the Veteran Farmer Training and a multiple-year Farmer Training internship dubbed “RIFT,” involve a blend of theory, practice, and fieldtrips to other farms, which Karnaze refers to as real-life case studies. Rodale Institute has been conducting research, farmer training, and education from their 333-acre farm for nearly 75 years—so they’re a wealth of information for an aspiring farmer.

“Boots On The Ground, Hands In The Dirt”

Caroline Barry

Photos in this series by Johnie Gall
understanding of what organic farming was really like. Pretty much my whole world was flipped upside down. But then I took what they gave me and I really kind of ran with it.”

Aslynn was one of Rodale’s first RIFT trainees. Upon arriving at Rodale’s campus in Kutztown, her experience with farming had solely been within Community Supported Agriculture (CSA).

“Farming is such an interesting career because you have to have the technical skills in the field and the organizational skills in the office, so it’s a good balance,” Parzanese explains. “And you are customer service-based when you’re at the market, so you’ve got to have it all.”

This is where the importance of institutions investing in their farmers’ training and thoughtful mentorship manifests.

“If you’re trying to find a job in farming, having tractor experience and tractor time on your resume is going to set you apart from anyone else,” says Parzanese. “Once young farmers realize how accessible it is to learn tractor work and become more comfortable with the machinery, it streamlines everything, and it empowers you.”

Parzanese’s dreams of becoming a nurse eventually came full circle when she accepted a position at Rodale Institute’s organic farm at St. Luke’s University Health Network, a major hospital network in Eastern Pennsylvania. Located on one of the network’s hospital campuses, the Rodale Institute St. Luke’s Organic Farm grows produce for hospital patients and staff.

According to Parzanese, they produce fruits and vegetables for ten different hospital campuses across their region. She credits Rodale Institute’s internship program and the mentorship she received with her current career trajectory.

“This is my first season on a production farm, but I feel really good about the change and I’m looking forward to it.”

Part of this process includes thinking about what your own farm operation would look like in practice. “It can be daunting to think about starting a farm when you hear about the rate of failure people experience for one reason or another,” he confesses. “That’s scary, especially to people who don’t have a substantial amount of savings or just a safety net.”

This is one of the reasons he was particularly drawn to the 22-month training program, which involves developing a realistic business model; one that’s ready to take to the bank and has the capacity to succeed. Without this investment in America’s future farmers, many would never consider taking the risk.

“Even if I don’t plan on applying every single thing that I learn here, my hope is that it’s always in my toolbelt afterwards.” For Riddle, it’s also a bit personal. “I’m hoping that some of my presence here might have an effect on what my aunt and uncle do in the future. Even if it’s just a seed of an idea and they can adopt some of these things, I believe at this point it’s the necessary thing that needs to happen.” He hopes to inspire them to be more regenerative in the future.
Lateral Moves

We know that land access and capital are the greatest barriers for emerging farmers, but what about those who are looking to expand their methods or transition to regenerative organic practices?

“Everybody is thinking about soil as an asset and as a living thing now, so that’s brought a lot of people to us,” said Sam Malriat, Director of Rodale Institute’s Organic Consultancy, launched in 2019. The consultancy puts trained agronomists and certification experts on farms in a one-on-one mentorship and personalized coaching model, advising farmers who are interested in transitioning their operations to organic on every thing from field planning to certification.

“If you know nothing about farming, you can start a relationship with us and we’ll help you through it,” says Malriat. These consulting services meet farmers where they are, and provide a connection to financial resources, market and buyer discovery, firsthand access to Rodale’s in-house soil science, plus a network to the greater regenerative organic community.

“One of the first farms to approach us just received organic certification for half of their acreage yesterday,” he beams. “They approached us and were interested in transitioning to organic after seeing the film Living Soil. In part because they’re amazing people, but also because they’ve had some small level of support from us, they’ve doubled their acreage since we’ve met them, they’ve added an apple orchard, they’ve purchased cattle, they’re hiring workers that typically wouldn’t get hired—they’re just doing incredible work where they are now in their community. It’s just really cool to see what they’ve accomplished.”

Rodale Institute’s Consultancy underscores the need for investment in regenerative organic farmers not just from agriculture itself, but from the government. The Institute’s Consultancy was started as a direct result of Pennsylvania’s 2018 Farm Bill, the first statewide Farm Bill in the nation.

That legislation outlined significant investment in Pennsylvania’s organic industry and allowed Rodale Institute’s consulting services to be offered for free to Pennsylvania-based farmers looking to transition to organic. Since its inception, the consultancy program has blossomed across state lines, and Rodale Institute plans to continue to expand their reach throughout 2021.

Perhaps the most rewarding part is that these relationships carry well past the consulting phase, says Malriat. “And we love that,” he laughs. “They sort of just become friends.”

An Equitable Landscape

Farming is a complex and difficult profession, one that requires training, resources, education, and experience. But the one thing it requires above all else? Land.

And these days, land is one of the hardest resources to come by.

In 2020, Rodale Institute, in an act of impact investing, placed $2 million dollars of its own endowment with Iroquois Valley Farmland Real Estate Investment Trust (REIT), a farmland finance company that provides organic and regenerative farmers long-term leases, mortgages, and lines of credit as they transition their practices.

With the availability of farmable land decreasing every year, the power of Iroquois Valley to purchase land quickly for organic farmers who may not have access to traditional funding sources is critical in ensuring the growth of the regenerative organic movement.

Main Street Project, a nonprofit based in Minnesota, is a direct example of this impact. The Project uses a poultry-based regenerative system to develop farming opportunities for Latinx immigrants working in the food system, offering training services for upcoming and established farmers looking to integrate regenerative poultry. These forms of investment enhance equity and access across the food system, supporting workers who are too often left out of the conversation.

Redefining Seed Money

Investing in our farmers is an investment in our collective future. Funding should have the potential to positively impact a farmer’s transition to regenerative organic, allow them to better market their products, or to solve a particular problem that is typically not fundable through normal lending strategies. This is the next venture in financing: regenerated investment in our farmers.
Learning to Fish on Alaska’s Kenai River

Standing waist-deep in cold turquoise water, I can’t tell if what I feel beneath me is the strong current or salmon between my legs. I cast my line, letting it land before rapidly snagging it, hoping to hook one of the hundreds swimming upstream. Nothing. I reel it in and try again. To my disbelief, I spot a grizzly on the shore beyond, slapping at the water, also catching salmon. Alaskan fishermen nearby occasionally yell, “fish on!” I watch as they reel in massive sockeyes, hoping to soon feel the same rush. A sharp tug pulls me forward, so I lean back, bracing myself. My Alaskan friend, Hannah runs over with a hoop net. The salmon flaps angrily as I reel it in, the hook caught on his gills instead of his mouth. “It’s a foul catch, you gotta release him,” Hannah tells me. I carefully unhook him while Hannah holds the fish still. He swims off, leaving a trail of blood. “I’m sorry, little friend,” I whisper, feeling bad for hurting a creature just trying to reach its spawning ground.

Suddenly Hannah catches one fairly on the mouth, and hauls it in. She grabs a nearby rock, recites a prayer aloud thanking the fish, and kills it with two swift blows. I wince as the final twitches release from its body. She’s now caught five salmon, today’s legal limit. Alaskans, even commercial fishermen, support individual catch limits – they ensure regeneration of this essential and finite resource.

Salmon are a keystone species – so deeply depended on by other species that if it were removed, the ecosystem would drastically change and potentially collapse. Salmon swim from the Pacific to freshwater rivers each summer to spawn and die. Their bodies carry marine nutrients, feeding a myriad of organisms – from eagles to seals to humans. Even trees need salmon’s nutrients to grow; in return they produce shade, mitigate erosion, and eventually fall, forming spawning areas to shelter juvenile salmon. The symbiotic relationships between salmon and other organisms create a natural balance, a self-sustaining harmony that if preserved correctly, can endure millennia.

Since 8000 BC, salmon have been so much more than food for Alaskans. Indigenous tribes have spiritual relationships with salmon: celebrations and rituals woven into their culture. Today, life for native and non-native Alaskans still revolves around salmon’s migration. Raised in a fishing family, Hannah says, “we set our calendars to the salmon’s schedule. Everyone spends the short summer - with midnight sunshine - harvesting, processing, and preserving salmon for the rest of the year.” Salmon are truly the lifeblood of Alaska, for both human and non-human species.

I thought I was learning to fish that day on the Kenai. Instead, I witnessed the importance of sustainability, of supporting the abundance of a species for future generations. Alaskans have a reverence for salmon that is unlike anything I have seen. Their commitment to this food source inspires me to reflect on my own relationship to the foods I choose to eat, and the impact of these decisions on their respective ecosystems.
We believe that the understanding of place begins with the development of a holistic context. The context articulates one’s intention, that then motivates one’s actions to engage in a regenerative lifestyle. As a steward, or as I like to say “caretaker”, the decisions we make need to be holistic in order to manifest this consciousness into our reality. How deeply we grasp this concept is seen through our management of the diversity of life in our context. Caring for the very things that depend on us to survive, reveals our understanding of place. Following this logic through, leads us to the conclusion that the outward management of the natural resources reflects the inward love we feel toward ourselves. Because ultimately, self care is a form of self preservation.

When we begin working with producers, we invite them to have a conversation about what it is they are trying to regenerate? We ask them, “What do you want the land under your management to become, if all of the current and future barriers were to be removed”? What does success look and feel like in your context? Who and what stands to benefit from this success? From our work in holistic management, we have learned to have them focus on the ends first and not the means. Further along in the process we can address the where, when, and how’s as the conditions of the context are complete. We believe that we will not find solutions to regenerating degraded land bases and their surrounding communities, unless the stewards who control the decisions can first define what they are trying to achieve. Ultimately, they are the ones who will live with the outcomes of their management decisions.

We walk the land with them, withholding judgment, or sharing quick fix solutions and try our best to engage in active listening. This can be difficult to do and one has to resist the temptation to get into the details before the process of developing a context is complete. We believe that we will not find solutions to regenerating degraded land bases and their surrounding communities, unless the stewards who control the decisions can first define what they are trying to achieve. Ultimately, they are the ones who will live with the outcomes of their management decisions.

As we walk and talk, we ask them to show us the places on their land that have special meaning to them. We ask about what they remember from their childhood, if they happen to be from a family farm or ranch. What smells or sounds do they remember? We ask them to show us their favorite view of the wide open landscape under their management. We ask if they have heard stories of what the land looked like when your great grandmother or grandfather first took ownership? We ask if they are aware of the cultures of the nations that came before them and how they lived with the land.

So when we begin working with producers, we invite them to have a conversation about what it is they are trying to regenerate? We ask them, “What do you want the land under your management to become, if all of the current and future barriers were to be removed”? What does success look and feel like in your context? Who and what stands to benefit from this success? From our work in holistic management, we have learned to have them focus on the ends first and not the means. Further along in the process we can address the where, when, and how’s as the conditions of the context are complete. We believe that we will not find solutions to regenerating degraded land bases and their surrounding communities, unless the stewards who control the decisions can first define what they are trying to achieve. Ultimately, they are the ones who will live with the outcomes of their management decisions.

Using Place to Understand Self

To ask one to engage with us in this way, suggest a place of comfort. Clearly, to have the time and perspective to think in this way, from the top of Maslow’s triangle, is also an example of privilege*. But what if it may be necessary to invert Maslow’s triangle, even for just one afternoon in our lives, for us to begin to articulate in depth our understanding of what we are aiming to achieve through our actions. Actions speak louder than words. But misguided actions can often be a misuse of time and resources, which are both finite in the course of a human life. So we ask the producers we are working with to spin the globe or as in this example of Maslow’s triangle, turn something on its head, in order to gain a new perspective to begin to shift their paradigm.

To ask such intimate questions when we are conscious that there is much to do and that needs to get done, it may seem a little bit naive, and perhaps it is. Maybe it is even a little bit MAD! But through this process and line of thinking, we might just discover the reason behind why one chooses to work on the land. Does one’s intention go beyond using the rhetorical questions, “What does this place want to be?”, it asks the first existential question needed to begin a regenerative journey. But the process cannot truly begin, until we answer the following question, “What does this place need me to be?”

This is the culture in agriculture that we at Mad Agriculture seek to try to understand. What lens do the producers we work with use to see the land? As planners, partners, allies, community members and oftentimes friends of our fellow land stewards, we cannot use our impressions or our own lens to help them see their farm. Instead we choose to lend them a kaleidoscope for them to use to gaze across the open landscape that is under their management and help to guide them to achieve that vision.

*I acknowledge this and I am guilty of the privilege that has been afforded and even offered to many who share my socio-economic class and race. By acknowledging this privilege, we at Mad Agriculture offer acts of reconciliation to those in the agricultural community so that others can have equal opportunities to succeed. Examples of these acts are: helping historically under-served farmers gain access to land, open sourcing of ideas and resources, and helping those groups and individuals access new and growing regenerative markets and supply chains.
For the last 2 years, I have produced and participated in the Citizen Science Soil Health Project (the CSSHP), which is a grower-driven project created to better understand successful soil health strategies for Colorado growers, and to develop soil health leaders among participating growers. The project provides annual Haney and Phospho-Lipid Fatty Acid (PLFA) soil health tests from Regen Ag Lab for each participating grower. CSSHP growers include 16 vegetable producers, 13 ranchers, 10 commodity producers and 6 home gardeners. As one of the home gardeners in the project, I have been pleased to see our home-gardening cohort receive some of the highest soil Haney soil health scores in the project. Our years of applying manure, compost, cover crops and amendments have paid off with healthy rich soil, high in organic matter and teeming with soil microbes. Despite this attention to building organic matter, almost all of us CSSHP home gardeners have also discovered excessive phosphorus in our soils.

Phosphorus (P) is an essential plant nutrient that is used by plant cells to build DNA and regulate metabolic reactions. It is essential for adequate plant growth and fruiting, and since most veggie production is either leaves or fruits, is essential for a productive vegetable garden. But phosphorus is one of those Goldilocks-type elements: you don’t want too much or too little. You want it just right.

Excessive phosphorus can interfere with plants’ uptake of micronutrients like iron and zinc, causing chlorosis, stunting and yellow or bleached foliage. Additionally, during storms or heavy watering, excessive phosphorus can run off into nearby waterways and cause eutrophication (excessive algae or water-weed growth, water-oxygen depletion, dead aquatic animals and poor water quality).

Excessive soil phosphorus is a very common challenge for organic vegetable growers nation-wide. Our CSSHP research shows that Colorado’s organic vegetable growers are no exception. Many organic growers depend on manure or compost to fertilize. Manure is readily available, easy to apply, and provides crops with a necessary nitrogen boost. However, manures, along with some composts, are rich in phosphorus, which can build up in soils over time. So while using mainly manure and compost fertilizers for years greatly improves tilth and soil health, continuous applications can also eventually cause excessive levels of phosphorus in soil.

For decades I have conscientiously applied manure and compost to my veggie patch, and have sprinkled beds with bone meal (0-12-0) and Gardeners Special fertilizer (11-15-11), both high in phosphorus. Upon testing my soils, I found that my rich black soil has phosphorus levels well into the excessive range, at almost 5 times the highest recommended level.

So if you have used manures, composts, and fertilizers high in phosphorus for years, consider testing your soil. A routine CSU soil test is simple to collect yourself and costs $35. If your test shows “High” or “Very High” phosphorus levels, stop using high phosphorus amendments. As Will Rogers said, “If you find yourself in a hole, stop digging.”

An alternative to amending soil with manure and compost is to plant cover crops. Cover crops can provide soil with similar organic matter as manures, but without increasing soil phosphorus. A rye-vetch mix is a weed-suppressing, organic-matter-boosting, Colorado-winter-surviving, fall cover crop. Plant by October, water in, and turn under in the spring - before it gets too big to handle and at least 3 weeks before planting the next crop (Rye is allelopathic, with root exudates that discourage other plants.) Spring legume cover crops like field peas, vetch and clovers can add necessary nitrogen to your soil. Inoculate before planting, and turn under the entire plant to get full nitrogen benefits. Other high-nitrogen low-phosphorus amendments to consider include blood meal (12-0-0), fish emulsion (5-1-1), and urea (46-0-0). A final consideration for high phosphorus levels is to plant water-absorbing buffer strips around your veggie patch, to slow and absorb any nutrient run-off during storms.
In the fall of 2019, I began working on a personal project exploring the topic of food sovereignty - sharing the visual stories of those working to fortify our food system. Through all the historic and catastrophic events that came along with 2020, the evolution of this project waxed and waned. But despite all the emotional and physical setbacks of this past year, one thing that continued to stick with me was the importance of those that work to conserve our land and water – the most precious resource we have, and one we cannot live without. ‘Rewilding, Remembering’ is an ongoing project, one that I will continue to explore as we navigate our changing earth, and our connection to our land, food, air, water, and soils.

The incredibly important work of MASA Seed Foundation in Boulder, Colorado, photographed in summer of 2020, exemplifies the heart of the project: what we are doing to rewild our land and remember our roots.

A huge part of MASA Seed Foundation’s work is education. Included in their vision is a solution-driven educational model linking its curriculums to MASA’s ongoing daily activities from their seed bank to their classroom to their farm, while supporting “co production” agriculture and community-driven permaculture projects, of which could not be done without the help of volunteers. Without education there is no such thing as food sovereignty.

For more images from the project, MASA Seed Foundation and others, please visit:

https://www.rebeccastumpf.com/rewilding-remembering
The shepherds of Georgia’s historic Tusheti region have roamed from the high peaks of the Caucasus Mountains to the warm steppe of the Shiraki Plain for centuries. It began in 1659, when these mountain dwellers descended from the hills to aid the lowland Kingdom of Khakhevi in its revolt against Safavid Persia. In return for their service, the Tush were granted land as far down as one horse could gallop until it collapsed. So unfolded the seasonal migration of the Tushetian shepherds, who ferry their sheep across Georgia to this day.

As a community that has endured for generations, the shepherds illuminate valuable lessons—ones of decay and revival, solitude and community.
Make Moves

The Tushetian shepherds live by the motion of their herds. If they spend too much time in one place, the grass becomes overgrazed. This can leave the soil destabilized—a recipe for catastrophic landslides, thinned herds, and reduced yields. By moving the herd at least once per month, the grass will have time to rest and regrow, remaining resilient for seasons to come.

Prevent > Rehabilitate

Listening to the land wasn’t always a priority in Tusheti. As Soviet industrialization took hold, centuries-old methods were eclipsed by a singular practice: sheep-breeding. Steep slopes transitioned from cropland to pasture, a risky shift that has left many villages susceptible to severe erosion and desertification. What was once a complex system rooted in natural wisdom was reduced to a streamlined machine. To return to this natural wisdom remains an uphill battle, and the land bears the scars.

Make Space

Today, Georgia and the Tushetian shepherds face a crossroads: protect migration passageways or risk losing this tradition and livelihood altogether. As Georgia’s development races on, appetite for land is squeezing the corridor that links the shepherds’ winter homes to their summer pastures. For entrepreneurs like Paata Abulidze, a shepherd dedicated to reviving Tusheti’s cheese making traditions, sale of agricultural land presents the greatest challenge of his career. Without space for their sheep to graze and rest along the 200 mile journey, many shepherds feel they may have no choice but to slaughter their herds. Destroyed land is one thing. No land is another.
Solitude ≠ Loneliness

To some, sustaining this way of life may appear mad-deningly solitary. Quietly meandering where international borders dissolve into stone and shrub, the shepherds may not see another person for weeks at a time. Many enjoy the solitude, yet they are never truly alone. The shepherds find kinship in their herds, villages, and those who are committed to their way of life.

With every round of toasts, one glass is always raised to the “shepherds without payment,” the horses and dogs who provide invaluable labor.

With every summer festival, families assemble in their villages to celebrate the return to their mountain roots.

With every effort to endure, the shepherds find their supporters, from fellow Tushetians committed to recovering lost methods to the international organizations who help fuel the revival.

Bring in the Young Blood

For all the hard work that is passed along to the next generation of shepherds, there is also joy. In the spring, young shepherds gather for a friendly horse race before beginning their seasonal migration from the plains to the peaks. As the old guard waits patiently with beers in hand, dust begins to pick up in the distance. Guttural calls and the rapid thuds of hooves grow nearer. In a flash, it’s over, and the men dart to one another to shake hands before heading off to feast. It’s been a long day, and the days ahead will be even longer. Might as well enjoy it.

Special thanks to Paata Abulidze, founder of Alaznisti Cooperative, and Soso Shetidze, owner of Shetidze - Tushetian Horses, for sharing their stories.
In April 2021, Restore Colorado launched with 17 participating restaurants and businesses beginning their direct support of regional regenerative farming.

Restore Colorado is a groundbreaking public-private collaboration between Zero Foodprint, Mad Agriculture, Boulder County, the City of Boulder, and Denver’s Office of Climate Action, Sustainability, and Resiliency.

Under the Restore Colorado banner, Zero Foodprint member restaurants collect a few cents per meal to provide grants for carbon farming projects overseen by Mad Agriculture. This funding helps Colorado farmers and ranchers implement regenerative practices such as compost application, perennial and cover crop planting, reduced tillage, and grazing management to build healthy soil. These carbon farming projects advance regional climate initiatives around carbon sequestration, resilience, waste reduction, and circular economies.

“Citizens want to take climate action and now they can directly fund climate beneficial farming in their own food system, which directly benefits local communities and creates tastier and more nutritious food,” said Anthony Myint, Zero Foodprint Co-founder and Director of Partnerships. “Restore Colorado is a chance to create a new normal that tackles climate change with healthy soil on local farms. This program is all about optimism and action.”

Restore Colorado creates a way for restaurants and diners to effectively and directly “vote” for climate solutions and healthy soil with each purchase. As of the launch date, 17 restaurants and businesses across Colorado have joined Zero Foodprint to support this initiative:

- A1 Organics: EcoGro Compost
- Annette (Aurora)
- Bin 707 Foodbar (Grand Junction)
- GB Culinary (Longmont)
- Nude Foods (Boulder)
- Serendipity Catering, Cafe & Coffee Bar (Denver)
- River and Woods (Boulder)
- Somebody People (Denver)
- Scraps (Denver)
- Subway (All 5 Boulder Locations)
- Sullivan Scrap Kitchen (Denver)
- Wompost (Aurora)
- Whistling Boar (Longmont)

“We are in a climate crisis, which can often make us feel helpless. Restore Colorado tackles climate change, supports our local producers, and creates healthier soils on local farms and ranches – it’s a win-win,” said Susie Strife, Director, Boulder County Office of Sustainability, Climate Action, & Resilience. “Boulder County is thrilled to be a part of such an innovative program”

“The impact of Restore Colorado goes well beyond the soil, it goes back to our communities,” said Phil Taylor, Executive Director and Co-founder of Mad Agriculture. “By directing resources to the foundation of our food system - the soil - we are finally able to provide reciprocity: from table to farm.”
On a spring morning in early April, 495 yards of compost were applied to a twenty acre hay field managed by Esoterra Culinary. This marked the first completed Colorado project under the banner of Restore Colorado. Farmer and Owner Mark DeRespinis returned to the front range to start Esoterra Culinary Garden after developing a farm at the world renowned Ojo Caliente Mineral Springs resort in northern New Mexico. Esoterra Culinary is building long term relationships with the most innovative and quality-focused food enterprises in the region.

The ecogrow compost came from A1 Organics, a family owned and operated organic recycling business serving the Front Range. The compost was spread by United Ecology, a Boulder-based alliance of regenerative practitioners.
The early days of the coronavirus pandemic saw a massive trend in bread baking. From sourdough to focaccia, social media feeds erupted with photos of home-baked loaves from seasoned and novice bakers alike. Flour and yeast became hot commodities, and grocers struggled to keep up with the demand. There was just something about slicing a homemade loaf and sharing it with others that brought people comfort and a sense of normalcy—something we are all craving these days—and this phenomenon is a testament to the deep history that humans have with baking bread.

Bread has been a fundamental component of the human diet since the dawn of farming and civilizations, eaten symbolically across cultures and religions. In Jewish cuisine, an eggy, braided bread called Challah is consumed on the Sabbath and other festive occasions. In Ethiopia, a small regional grain called teff makes up the dough of Injera, a pancake-like flatbread served as a staple food on many festive occasions. In Ethiopia, a small regional grain called teff makes up the dough of Injera, a pancake-like flatbread served as a staple food on many festive occasions. In Ethiopia, a small regional grain called teff makes up the dough of Injera, a pancake-like flatbread served as a staple food on many festive occasions.

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A food that has stood the test of time, we still bake bread in much the same way as we did thousands of years ago, and the social aspect of breaking bread together with friends remains a deeply grounding experience.

Species of Bread

Despite the longstanding cultural importance of bread, the loaves that we buy in supermarkets today bear little to no resemblance to the ones we’ve just described. Most don’t give much thought to things like flour, despite there being a wide range of varieties with different flavor profiles and nutritional values. The resurgence of grain excitement comes from “ancient” and “heritage” varieties, which are grains that pre-date the modern strains of wheat that make up many of our flours today. While “ancient” and “heritage” have no universal definition, ancient grains are typically classified as ones that have remained largely unchanged since the dawn of civilization—think spelt, Kamut, emmer, einkorn, quinoa, or buckwheat. Heritage grains are more modern than ancient grains, but they still pre-date the Green Revolution—the period in the 1960s when mainstream food production transitioned to use of genetically modified, high-yielding seeds.

Wine has long been known for its terroir, a term used to describe how a particular region’s climate, soils and terrain affect the taste of wine. A similar concept applies to grains. Ancient and heritage varieties of wheat are often regionally adapted—in other words, consistently grown in climates, terrain, and soils where they are adapted to thrive. This supports healthy soil ecosystems, leading to higher concentrations of nutrients in these grains. When baked into breads, they’ll have far superior flavor and nutrition compared to loaves made from modern wheat varieties. Unfortunately, ancient and heritage grains have been all but abandoned in mainstream food production because they are low yielding, returning lower profits for farmers. In the quest for quantity, we have abandoned quality.

Luckily, there is a growing movement of farmers, millers, bakers, chefs, scientists, and activists in Colorado who are working to revive ancient and heritage grains for our health, the environment, and the local economy.

On the Farm

All food movements start with a seed, and that’s where Mad Agriculture comes in. Working to shift mainstream farming away from industrial, extractive systems to regenerative ones, where crops are grown and animals are raised in stewardship of the land and the soil. Driven by a place-based approach—oriented around local heritage, cultures, landscapes, opportunities and experiences—they quickly grew interested in grain revival.

Heritage varieties of wheat can certainly contribute to the organization’s goals to cultivate healthier land and soil. Some heritage varieties have longer root systems than modern wheat, which provide a host of benefits to the environment. They also distribute plant sugars more effectively throughout the soil, feeding all the tiny organisms that work around the clock, recycling nutrients that in turn support plant growth. This nutrient recycling also builds healthier soil, which can serve as a carbon sink—an ecosystem that draws carbon out of the atmosphere—as well as combat problems like soil erosion and runoff.

However, it’s important to note that simply planting more ancient and heritage grains isn’t going to restore the land or solve climate change. Our modern agricultural system is highly focused on yields as a measure of success, and if we were to translate that mentality to expanding the production of ancient and heritage wheat varietals, we could very well end up with a flavor and nutrient-deficient grain system similar to the norm today. Farm management is an important factor for seeing the potential environmental benefits come to fruition. Ancient and heritage grains fit well into planned crop rotations on diversified farms—ones with a farming model that is more catered towards the environment than industrial monoculture. While natural food companies that use ancient and heritage grains often make claims that the grains themselves are better for the environment, it is important to note that the real benefit of growing these grains comes from the systems change that they contribute to—a system where fewer chemical pesticides and fertilizers are used, and soil health is prioritized.

Mad Ag recognizes that without a market for these grains, none of these environmental benefits are possible. This means that much of their work is in creating and facilitating relationships along the local supply chain to aid in the growth of a local market for ancient grains. Two years ago, they partnered with local seed savers at MASA Seed Foundation to conduct small-scale field trials and learn which varieties grow best in the Front Range. The following season, the team connected farmers across the region with the seed varieties that they found had the potential for the highest yields. More logistics came into play after growing the grains at larger scales, so when last year’s harvest came around, Mad Ag helped farms borrow and rent the equipment they needed to clean and harvest wheat before sending it off to mills. The organization’s work continues to advance understanding around grains and the crop’s potential to contribute to thriving farm economies and healthier soils.

At the Bakery

Mad Ag’s first year of grain trials in 2019 culminated in a community harvest event and a farm-to-table dinner at local bakery, Moxie Bread Co. At the event, relationships were cultivated between local farmers, millers, bakers, and grain aficionados alike, keeping the movement’s momentum going. Again, the experience of breaking bread together with friends is not one to be underestimated.
Few people understand that concept better than Andy Clark, two-time James Beard semifinalist and owner and baker at Moxie Bread Co. in Louisville, Colorado. His bakery sources the ingredients for all its breads from regional heritage growers, and all its flour is stone-milled in house. Clark serves as the Chair of the Board of Directors of the Colorado Grain Chain—a non-profit dedicated to raising awareness and demand for local ancient and heritage grain products. He is without a doubt one of the driving forces behind the grain revival in Colorado.

While Mad Ag focuses largely on the farm and environment aspects of the grain chain, Clark focuses on the culinary piece—baking breads that are superior in flavor and nutrition to the plastic-wrapped loaves we typically see in the grocery store. While he’ll be the first to tell you that he isn’t a scientist, Clark has amassed a plethora of anecdotal evidence about how much easier it is for his customers to enjoy and digest his breads made from ancient and heritage grains. "We’ve been finding at Moxie that these grains are just so much easier on the gut, and a lot of people who have sensitivity to wheat—not Celiac disease, but more general issues with inflammation response—the kind that lead to abdominal pain and bloating for people who have gluten sensitivities. Tak

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ing those findings a step further, researchers at Cambridge University conducted a dietary intervention study on people with irritable bowel syndrome, a common condition in the U.S. where frequent digestion issues cause painful cramps, bloating, tiredness, and irregular stools. Over six weeks, one group of study participants ate products made from ancient and heritage grains, while the other group ate products made from modern grains. The researchers found that the cells exposed to modern wheat were less able to suppress an inflammation response—the kind that lead to abdominal pain and bloating for people who have gluten sensitivities. Tak

Recent studies have shown that ancient and heritage grains may indeed be better for our health than modern varietals. As a result of the nutrient stripping that occurs in mainstream processing to make flours whiter, modern grains have been linked to a rise in auto-immune diseases and other inflammatory conditions. Celiac disease and gluten sensitivity (bloating and abdominal pain after gluten consumption) have both grown exponentially in the U.S., where modern wheat dominates the market. Existing studies on wheat consumption and people with gluten sensitivity suggest that heritage varieties pose fewer problems to our digestive system and overall health.

One such study was conducted in 2018, when researchers at the University of Bologna observed how human liver cells responded to digested bread made from ancient wheat versus digested bread made from modern wheat. They found that the cells exposed to modern wheat were less able to suppress an inflammation response—the kind that lead to abdominal pain and bloating for people who have gluten sensitivities. Tak

According to Esposito, the science and nutrition piques both producer and consumer interest in ancient grains, but the flavor factor is what convinces them to fully make the switch. The movement must emphasize taste above all to continue moving forward. "We need chefs and bakers talking about the flavor," says Esposito. "We don’t want to spread the stereotype of hippy, healthy breads that taste like cardboard—but it’s good for you! That’s why presentation and education are important. People don’t have to overthink everything, and sometimes as long as we get the taste and flavor across to them, that’s okay too."

Chefs and bakers like Clark can lead the way. He confirms that while Moxie’s customers continue to return to the bakery for a variety of factors, the superior flavor and variety of their breads is the key. That is where ancient and heritage grains really shine. "The flavors are just outstanding. There is much diversity of grain varieties to choose from when you’re working directly with a farmer rather than buying from a big distributor, and that translates into better breads" says Clark. Turkey Red, Red Fife, White Sonora, and Khorasan are names of just a few of the many heritage varieties Clark gets to choose from. Each one has a different flavor profile, as well as different gluten and protein contents, which help determine what each variety can be used for. For instance, Turkey Red (Clark’s favorite) is robust and “whacky” in flavor and produces 100% whole wheat loaves with satisfying crumb and a

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mild sourdough flavor. On the other hand, White Sonora is light and buttery, and is excellent for making handmade pastas or pastry crusts. One could truly go on and on for each varietal, the point being that when it comes to flavor, there is simply no competition between heritage grains and modern ones. This I can confirm.

On a personal note, I haven’t eaten bread in nearly four years, due to gluten sensitivity similar to what Clark’s customers had previously described. After countless hours of research and reporting for this piece, I decided the best way to research ancient and heritage grains was to try them out for myself. So, on a clear, crisp morning in autumn, I made the short drive from Boulder to Louisville to purchase one of Moxie’s loaves for myself. I arrived at nine o’clock, and there was already a line for the bakery stretching down the block. As I inched closer to the front, I peered into the bakery window, which was lined with loaf after loaf of rustic, European-style bread. A sign above them proclaimed “All breads made with 100% organic, heritage grains”. After a few minutes of indecisiveness I bought myself a dark, round, lightly seeded whole-grain loaf called “Frobrod”.

The aroma of fresh bread on my drive home was absolutely overwhelming. The moment I walked in the door, I took out my bread knife and cut a slice from the loaf. I toasted the slice, then spread a thin layer of strawberry jam on top and took my very first bite of heritage grain bread. It was nothing like anything I had ever tasted before—an entirely different species of bread compared to what I had bought in supermarkets in the past. The crust had an audible crunch, but the inside was soft and light. There was a complex mix of flavors in every bite—mild notes of sourdough, a robust “wheaty” taste, and hints of nuttiness and sweetness. I happily polished off the loaf in about a week, and did so without experiencing the gluten sensitivity that I had in the past. I was officially converted back into a bread eater, and I won’t be looking back anytime soon.

**Secret Ingredient: Story**

We have moved very far away from the food systems of our ancient ancestors. Many of us have no idea where the eggs in our morning breakfast came from. What did that farm look like? Who was the farmer? How far away is their farm? While awareness about our food is growing, transparency and traceability in the system are far away from becoming mainstream practices. One of the places where it’s easiest to learn about our food is from local farmers, chefs, and bakers, whose hands we can physically shake.

Perhaps that is why the Colorado grain revival movement gained ground alongside the early wave of pandemic bakers. Much of the interest in these grains comes from the satisfaction of finding and eating foods that hold story. It gives consumers something to hold onto and get excited about, and that allows for everything else to come into play—where farmers can get paid more for their grain, sell directly to mills, and provide ingredients to bakers that can tell their story. None of this is possible in an industrial system, where grains are identified only by a few letters and numbers on a sack.

In other words, there is a distinct difference between feeding and nourishing. The latter can only be done when food is connected to people and place.
Mad Ag makes hats with animals on them. We often get the question, ‘Why do you sell hats with animal on them?’ What does a monkfish have to do with regenerative agriculture? Our answer is, everything. Good agriculture always considers the wild. It always considers what life and ecosystems wants to be and how to work with it, in relationship. Regenerative agriculture aspires to farm in nature’s image.

When I ask, ‘what does the Earth long to be?’, it doesn’t take long to realize that we live in world that is greatly diminished by the impact of humans. We are living in the 6th great extinction, and most people don’t even seem to care, largely because they don’t know how to see it. How do we change this? Frankly, I don’t know, but I have an idea for how to try.

We must learn and tell the stories of those hurt by humans, and in that sharing, we may regain a love of place, and create a more boundless ethic to reconciliation. Mad Agriculture is doing this by creating bodacious hats that help honor and tell the stories of species hurt by agriculture.

We are currently showcasing six of the twelve animals that teach and inspire me. Here, I share simple vignettes into our stories, knowing that your story will be different. Humans have filled volumes of pages with the natural history of these creatures, but I prefer to share more visceral encounters, for we ultimately care for and consider that which we experience.
I fell in love with seeking what has been lost in my relationship to the blueback river herring. I grew up on a tributary of the lower Susquehanna River. I spent my childhood on Basin Run, a small creek that hasn’t seen a herring run in a generation.

My grandfather told me the herring ran so thick he could walk on water. I didn’t believe him until I found the 1607 journals of Capt. John Smith, and I quote, “…we found, and in diverse places that abundance of fish, lying so thick with their heads above the water, as for want of nets (our barge driving amongst them) we attempted to catch them with a frying pan”. Yet, the pan didn’t work well, so he took to his sword, stabbing more fish in an hour than his men could eat in a day. Classic colonizer.

These fish are virtually gone, along with the Menhaden and Shad. I’ve searched the Octararo, Rappahannock, Wicomico, Nanticoke, Sassafras, Pocomoke, Chester, Camppowder, White Clay, Brandywine and more.

Why? We’ve taken too many. Commercial harvest peaked in 1908 at 66 million tons and crashed by the 1980’s. We’ve damned every creek and river. We’ve ruined the remaining habitat with silt and pollutants from bad agriculture and sloppy industry. Now it’s illegal to catch and keep even one herring in fear that they’ll go extinct. Despite being one of my favorite fish, I’ve never seen one in a river.

I have however had the joy of swimming among herring in the ocean. They move as dark masses, like passing cloud shadows on the water. Whenever I am lucky enough to see them, I leap and rush headlong into the bazillions of herring. No time to grab goggles. With eyes wide open, I peer through dark green water with visibility of 2 feet, and I can feel the energy of the school move the water, thrumming with muscle, reeking of fish oil and glittering with silver. Larger creatures flash through the school, feasting. Bluefish, sharks, dolphins all around me, unseen.

In my old age, you will find me blowing up dams, freeing the rivers and the fish.

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**RIVER HERRING**

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**WOLVERINE**

I spent a summer following warblers and mayflies from mid-Michigan to the upper Peninsula. I had several fly rods, a tying kit, a bag of clothes and hundreds of pounds of books in the back of my Volvo 240 wagon. I was intoxicated with nature, in a classic American boyhood sense. During the day I’d fish, and at night, I’d tie flies and read. The natural history of everything was fascinating. I couldn’t get enough.

Late one evening I was sharply awoken by screaming, not more than 10 feet away from my tent. I couldn’t fathom what it was. It sounded like a witch, or worse, a child being murdered. I never mustered the courage to open the tent fly. The next day I visited a gun & tackle shop and asked the proprietor about wolverines. He laughed. Trappers had killed every last one over 200 years ago. I despaired.

The wolverine is a mysterious animal that inspires awe and wonder. For me, this news of extermination catalyzed a different set of questions. It’s absence invited me to consider how humanity could hunt something until regional extinction. What is the mentality, conscious or unconscious, of killing to a point of disappearance? Why do I feel so different? I also wonder how fear shapes behavior? I certainly wasn’t coming out of my tent that night long ago. Looking back, I wonder if wilderness is beautiful because it is also a luxury. Wilderness is perhaps more delightful when one is not trying to survive, equipped with field journals, gear from Patagonia, binoculars, hatchet, headlamp, and an old Volvo with mountains of books. The wolverine reminds me of the propensity for humans to be deeply shaped by the culture and paradigms we are immersed in.

That screaming I heard was likely a raccoon.
The wolf came to me through my wife, Coco. She has been working with myth with a fantastical group of women that have Dr. Clarissa Pinkola Estes as a guide and elder, who wrote *Women Who Run with Wolves, Myths and Stories of the Wild Woman Archetype*. The wolf gives clues and insight into what is knowable of the instinctual psyche. I see the wolf in Coco’s devotion, keen sensing, endurance, tenderness and intuitive knowing. And beyond this collection of traits, La Loba sings over Coco, stitching together the bones of a wilder soul that howls more than ever. It’s amazing how her wild awakening calls me to awakening, least we lose our flame together. Again, I’m beginning another journey.

As we learn how the wolf archetype provides awakening, the wolf has entered our lives in other ways. I’m reading the late Barry Lopez’s book, *Of Wolves and Men*, a stunning account that inverts the traditional fear and misconceptions of the wolf. My family is currently reading this, and as a father, it is my first step toward learning with my children the depths and mystery of an animal. My father, mother and grandfather taught me to look and see. I’m doing my best to continue that lineage of work. Our learnings hit home in a deeper way because we also have Apollo, our dog, that is partially wolf.

I’ve encountered many beavers in my adventures. I love watching them build their homes. The familial nature of their bond is overwhelmingly clear. If anyone doubts that animals love and care, have strong emotion, find and watch a family of beavers. Beavers are the classic keystone species. When they are removed from the landscape, the landscape drastically changes. Streams erode, wetlands dry up, salmon to herons lose vital habitat.

My favorite moment with a beaver was in a place I least expected to see one. I was working in the Catskills, studying how nutrients ‘spiral’ in stream ecosystems. I was standing knee-deep in the upper reaches of the Esopus River, watching some trout gather in the slipstream of my waders. Suddenly, moving fast and underwater, bolts of white plumage darted by my feet upstream. I was startled. Watching this strange phenomenon unfold, I saw two hooded mergansers pop to the surface, water rolling off their backs, fish in their mouths. At the same time, something was directly at me, leaving a wake in its path. An enormous beaver swam through my legs, brushing against my waders, and then abruptly stopped 10 feet downstream, in the thalweg of the stream. The beaver looked me in the eyes, slapped its tail with a deafening clap and an unmistakable fury, then disappeared.

Later that evening, when driving back to the Wey’side Inn in Big Indian, NY, we passed a small tributary to the Esopus, named the Beaver Kill. No wonder that beaver was angry.
My love for the Chesapeake Bay runs deep, as I grew up at the confluence of the Susquehanna River and the Bay between the towns of Rising Sun and Port Deposit. The history of the Chesapeake Bay since 1607 has been a tale of deterioration. Virtually every major citizen of the Bay has been removed from the bay and now pollution prevents the swift return of any species. The system has been changed, perhaps irreversibly.

The glory of what ecosystems want to be inspires me. I’m drawn to ecosystems that are not highly modified by humanity. Regardless of why (privilege, upbringing, how my passions have evolved), I think there is something primordial within us that draws us to natural areas and a sense of wonder and expression. Who doesn’t enjoy sitting around a fire?

It’s often hard to know what is possible because we’ve wholly forgotten what was. We lack stories and memory, and examples of thriving landscapes are rare. We have national parks, state parks scattered about, but these are fragments of a former land.

I’ve gotten a pre-colonial glimpse of the Bay in reading the journals of Captain John Smith, who writes in 1608, ‘Of fish we were best acquainted with sturgeon, grampus, porpoise, seals, stingrays whose tails are very dangerous, bris, mullets, white salmon, trouts, soles, plaice, herring, conyfish, rockfish, eels, lampreys, catfish, shad, perch of three sorts, crabs, shrimps, crevices, oysters, cockles, and mussels’, and oysters ‘lay as thick as stones’. This is a far cry from what is.

I’m a shameless aesthete. I strongly believe that beauty, diversity and evolutionary expression are guides to our work and ought to shape morality. The potential of the Bay enthralls me. Seeking its restoration is reverence for life.

OYSTER

STURGEON

I worked in the Catskills under the wing of Denis Newbold and Stroud Water Research Center. Stories of massive sturgeon are legend and lore along the Hudson River.

Sturgeons are likely the seventh oldest species on earth, unchanged for 200 million years. These ancient fish were once so populous that early settlers would avoid boating during the spawn. Humans once loved it for the wrong reasons: its meat and caviar. From 1881 to 1886, the Hudson River was eviscerated for ‘Albany beef’ and the ‘Black Gold Rush’ for caviar. The sturgeon are now critically endangered and protected under the Endangered Species Act.

My second son Hudson was named in part to honor the valley and river. This fish, which I’ve never seen in the wild, means the world to me. Because the world is diminished, I find that imagination helps anchor the efforts of restoration. When I can see the Hudson River or the Chesapeake Bay, I often dream of colossal sturgeon finding their way joyfully into more habitable times. I also recognize herein the limits of imagination. Who would ever know that the sturgeon exists if it’s so rare?

Sturgeon have become symbols of the Hudson estuary, their bony image displayed on signs lining rural highways. These roadside signs invite a deeper reflection on the role of technology in creating access to the ecosystems and creating a basis for fighting for things we ought to value. Signs are simple. The rise of digital applications, like iNaturalist, take the opportunity to a whole new level by creating a social network of people documenting and sharing biodiversity information to help each other learn about nature’.

Could technology help us plunge into nature, helping us see and learn about the world that surrounds us, but we are challenged to appreciate? I think so.
The Quivira Coalition builds soil, biodiversity, and resilience on western working landscapes. Quivira fosters ecological, economic, and social health through education, innovation, and collaboration.

You probably don’t need to be convinced of the importance of soil health - you may call to mind the spring under your step, the smell of rich, living soil, and the feel of squeezing soil aggregates or having a worm cringe in your hand. Healthy soil also connects to climate and specifically to drought resilience by increasing the uptake of carbon dioxide from the atmosphere and building organic matter, which in turn increases water infiltration and retention. And of course, soil is the basis of food production in both crop and rangelands; making it the basis of the connection between rural producers and communities to eaters all over the world.

You may also know about the management principles that help the land move in the direction of healthy soil. Minimizing disturbance/inputs and keeping the soil covered are the principles to protect the soil. Maintaining a living root and maximizing biodiversity are the principles to feed the soil food web. These principles are by design not prescriptive, and allow land stewards to make decisions that work with the barriers and opportunities that they have at hand.

So why are soils still degraded? Why are the people who are interested in healthy soil not making changes? We heard from ranchers and farmers from New Mexico listening sessions that barriers are complex; the responses varied from wanting to honor the management and legacy of previous generations, to inaccessibility to relevant or regionally-appropriate information, to a lack of time or money to invest in making a change, to not having solutions that match the scale of their operation (eg. what can be done on a 100,000 acre ranch vs. a 1 acre irrigated farm?). Some of these barriers are in the “head” but more importantly, some of these are in the “heart” (to borrow the phrases of our Mad Ag collaborator Clark Harshbarger), meaning that an economic cost-benefit analysis or the results of a soil test are unlikely to change people’s behavior.

With this context, Quivira Coalition’s Carbon Ranch Initiative partnered with Mad Ag to write a grant to NRCS to build a Planning program to help ranchers build soil health and soil organic matter. We’ve been working with the first set of participants since the start of the year and found that the first step is to build trust and deeply listen. The planner doesn’t know best, but rather knows how to bring out the best. All we do is take time to listen to the steward and the land and then target areas of growth in the relationships between land, steward, and community.

When we attend a site visit and walk across the soil, we peer back through time, wondering why a previous owner made a berm there and hearing that the grandmother remembers when the trickle of a creek used to run high enough to swim in every summer. We face questions of who came before any of us remember, and how we can steward into the future for people who in turn won’t remember us. As planners, we are of service if we can sit with the challenges at the heart of land stewardship. Only later do we get around to talking about monitoring or soil testing, resource concern checklists, and potential funding sources. We are working hard to first understand the story of the land and its stewards, and only then can we address its future.

We’re not finished with any of the first set of plans. We’ve probably made some mistakes and will make changes in the future, but we wanted to share where we are with the process and invite a conversation with our larger community. Conversations that we’ve had with our ranchers/farmers include questions like: Do you need an expert to tell you what fertilizer to add, or can you try something on a small section of land and see if it works? Do you want to make a decision on destocking alone, or do you want to check in with your neighbor and see if you can get a short-term lease? Is teaching the younger generation important to you, even if your own children or grandchildren are not coming back to the land? We think that we can and should connect these conversations to soil health in order to make lasting change.
Dan grew up on a cattle ranch in Wyoming and met his wife, Cindy, while studying for a Master’s degree in Animal Sciences at Colorado State University. Cindy’s father, Rex Walker, started Sombrero Ranch, a guided horseback riding business in 1958 in Estes Park. By the time Dan married into the family business, Sombrero had grown to include nine riding stables along the northern Front Range and on the Western Slope, including two operations in Rocky Mountain National Park, and a statewide herd of approximately 1500 horses.

Dan now operates the Boulder County portion of the business. Dan also grows hay on 1200 to 1300 acres of land, producing around 4,000 tons of hay a year, all of which is used by Sombrero for their operations in Boulder County.

In addition to Sombrero Ranch, Dan Lisco also grows a variety of crops. Dan is a wheat grower and has worked with Ardent Mills for many years. In 2020, Dan worked with Mad Agriculture to diversify crop production, trialling three heritage varieties to help lift and support regional grain markets. The varieties he tested across 6 acres were Khorasan, Red Fife and Rouge de Bordeaux. This year, Dan is growing out 12 acres of Rouge de Bordeaux.
The key to getting comfortable with making pasta is finding yourself a trustworthy recipe! I found mine in Mastering Pasta by Marc Vetri. After getting the hang of his egg yolk dough, the way it should look and how it rolls out, I ventured into using the same recipe but with different flours.

Factors I would pay attention to with each experiment were moisture content and how long I spent working the dough. The more whole wheat in the dough, the more moisture I’d incorporate, the more I’d have to work the dough to get it to feel smooth and pliable, and the longer I’d let it rest before rolling out. As you get comfortable making and rolling out pasta, it can become a weeknight staple, easy to whip up and toss with your favorite sauce, herbs, cheese, or seasonal veggies.

In this recipe, I used fresh-milled Khorasan in place of semolina. Khorasan is an ancient grain, high in protein, golden in color, with sweet and nutty flavor. It is often compared to durum wheat (coarsely milled, whole grain durum is also known as semolina). Durum and Khorasan tend to yield a relatively extensible dough. They can be stretched into long sheets without breaking, making them ideal for pasta.

Dan Lisco, the farmer who runs Sombrero Ranch, worked with Mad Ag in 2020 to diversify his crops and support the regional grain market. Lisco grew out three different heirloom varieties of wheat on six and a half acres: Rouge de Bordeaux, Red Fife, and Khorasan.

A note about this dough recipe; it calls for 5 egg yolks. I’ve always wondered and Googled my way through the best uses for those leftover egg whites. I’ve made a few angel food cakes, macarons, and meringues but if you ask me, I’ll tell you the easiest, fastest, and most nutritious way to use them is to incorporate them into an egg scramble or frittata.

Lastly, I used all-purpose but standard pasta recipes tend to call for 00 flour. You can use 00 flour but I would start with one tablespoon of water, see how the dough feels, if its too dry, then add the second tablespoon. 00 flour is very finely ground with most of the bran sifted out which generally means it needs less hydration than the all-purpose I use from Dry Storage.
**Khorasan Farfalle**

Time: 30 min active, 24 hours inactive  
Yield: ½ pound dough

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**Ingredients:**

- 94 g Dry Storage All-Purpose Flour  
- 31 g Lisco Khorasan Flour  
- 5 egg yolks  
- 1 ½ teaspoons Olive Oil  
- 2 Tablespoons Water

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**Directions**

Using a scale, weigh out the all-purpose flour and Khorasan flour, whisk them together in a bowl.

Create a well in the center of the flour. Pour the egg yolks, olive oil, and water into the center of the well.

Using a fork, slowly whisk small amounts of flour into the center of the well. Eventually creating a shaggy dough.

Transfer the shaggy dough to a flat, non-porous surface, and begin kneading the dough until it becomes one cohesive ball. Cover the dough and let it sit for ten minutes.

After ten minutes of rest, uncover the dough and knead it for another 8 minutes or until the dough feels smooth and shiny. If the dough feels tough, add a small amount of water and continue to knead. I have noticed, in a dough with a higher percentage of whole wheat flour, the dough takes more time to absorb water. My advice is to be patient. If the dough seems borderline too dry, chances are, after sitting for a bit of time, it will hydrate. So be sparing about how much more water you incorporate here.

Shape the dough into a ball, then flatten it to a disc shape. Wrap the dough in plastic wrap and let it rest for at least thirty minutes at room temp, or ideally, in the refrigerator overnight.

**To roll the dough out:**

Prepare your work area. You’ll want a decent amount of counter space. Place your pasta roller, a bench knife (or knife), a rolling pin, a pasta cutter, a bowl of flour, and a sheet tray sprinkled with semolina.

Divide the dough into two equal pieces. Re-wrap one of the pieces while you begin working the other.

Lightly flour the piece of dough you’re working with on both sides. Using a rolling pin, roll the dough out to a thin rectangular shape, whose width is about the width of the pasta roller.

Set your pasta roller to the widest setting, on most this is a “1” on the dial. Feed your dough through the roller.

Fold the dough onto itself, like an envelope, creating a rectangle again. Using the rolling pin, roll it thin enough to feed through the roller. Feed this rectangle through the roller again, repeat this process at least three times. By doing this, you’re strengthening the dough. While doing this, try to maintain a rectangle with straight edges and ends.

After feeding the pasta through the roller on the widest setting, move the dial one setting narrower, or go from “1” to “2”. Feed the pasta through the roller on this setting twice. Continue to narrow the roller setting, passing the dough through twice on each setting.

If you’re making Farfalle as pictured, you’ll want to roll your pasta dough to setting 4.

Once you have one long sheet of pasta. Lightly flour the sheet and set it on your work surface. Trim and straighten the ends and edges. Using a pasta cutter, or knife, divide the dough into axminster rectangles. If you have a fluted pasta cutter, use that to cut the shorter edges of the rectangles. This creates the nice wavy wings of the Farfalle.

To shape the farfalle, take one of the rectangles, stick your index finger smack dab in the center, with your nail and fingerprint side facing the long edges of the rectangle. Now, using your thumb and middle finger, gently bring the edges up and in toward your index finger, creating a fold on either side on your finger. Remove your index finger and pinch the folds firmly together with your thumb and middle finger. Place the finished piece of pasta onto your floured sheet tray and repeat till you’ve used all your dough.

Stick the sheet tray of pasta in the freezer or fridge until you’re ready to cook it. If not cold, the pasta pieces will begin sticking to each other.

**To cook the pasta:**

Fill a pot with water and a hefty pinch of salt (the water you cook your pasta in should be salty like the sea) and bring to a boil.

Drop your pasta into the pot when ready, give them a quick stir to prevent the pieces from sticking and set a timer for 45 seconds. Taste a piece at 45 seconds. It is likely close to or already done. You’ll want to strain the pasta when it still has some bite, or is al dente as they say.

Reserve about a ¼ cup pasta water and strain the rest off.

Toss the pasta with your favorite sauce, cheese, herbs, spices and or veggies and a splash of the reserved pasta water.

Buon appetito!
As Mad Agriculture continues to build out our framework of change, we are also building out our team. Mad Ag is proud to introduce our three newest team members: Fany Bortolin, Alex Heilman and Elizabeth Candelario. All three of these industry leaders will be establishing new roles within our organization. This expansion of our capacity will allow us to serve the land and the farmer in deeper ways.

Elizabeth Candelario and Alex Heilman will be running our Markets program. This team will help regenerative farmers develop relationships with values-aligned buyers, stitching together local and regional supply sheds with partners, infrastructure development, contracting, brokerage, managing logistics and much more. They will work with the Stewardship and Capital teams to improve farm profitability and biodiversity.

Fany Bortolin will be joining the work of the Perennial Fund as the Farm Lending Lead. Fany will focus on working with regenerative organic farmers to provide them with transitional operating, equipment, and infrastructure loans so they can transform their farms and the broader food system.

Elizabeth Candelario
Elizabeth has worked at the intersection of food and wine, climate, and agriculture for the past two decades. While serving as President of Demeter USA- the non-profit certifier of Biodynamic farms and products- Elizabeth collaborated with leading natural food companies and retailers to bring Biodynamic products to store shelves in order to drive adoption of Biodynamic agriculture and educate citizen consumers about why they should support regenerative farming with their grocery budgets.

Elizabeth looks forward to continuing this work with Mad Agriculture, and is especially excited to develop new and disruptive models that move supply chains to value chains and honors and rewards farmers for stewarding their land for people and planet.

Fany Bortolin
Born in Buenos Aires and raised in Brazil, Fany spent her childhood summers camping out on regenerative farms. The disillusionment came years later at the discovery that not all farms are regenerative, and the realization of the devastation that conventional farming causes to the environment, the economy, and ultimately human health. That initial anger paved the way for what has become a life-long career in sustainable agriculture.

Today, fueled by the love for her daughters, a profound sense of responsibility to future generations, and an uncompromising commitment to America’s hard-working regenerative farmers, Fany joins Mad Agriculture’s efforts to reimagine and restore our relationship with Earth through agriculture.

Fany holds a bachelor’s and master’s degrees in accounting and financial management along with a bachelor’s in social psychology. Fany speaks Portuguese, Spanish, and Italian; she is a certified yoga teacher and will always be a humble, curious, life-long learner. Her favorite color is blue.

Alex Heilman
Alex Heilman is an organic markets specialist. He’s super passionate about food and supply chains and has had the unique experience of working across the ag/food value-chain; from cooking at Eleven Madison Park, to merchandising and trading commodities, and driving business development and sales at growth stage start-ups.

Recently, Alex was the Director of Sales at Mercaris, a Price Reporting Agency and trading platform that exclusively operates in organic and non-GMO markets. He holds a B.S. in Food Systems- Applied Economics from The University of Minnesota, Twin Cities, and an A.O.S. in Pastry Arts from The Culinary Institute of America.

Outside the office you can find him traveling for food & wine, vegetable gardening at his home in Minneapolis, reading too many books at the same time, and constantly “recipe testing”.

Alex Heilman
TEAM

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Co-Founder & Executive Director

Nicole Brinks
Co-Founder & Community Leader

Tanner Starbard
Director of Operations

Brandon Welch
Director of Radical Capital

Jane Cavagnero
Creative Director

Clark Harshbarger
Director of Stewardship

Rebecca Baldwin-Kordick
Farm Planner

Jarred Maxwell
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THIS ISSUE IS DEDICATED TO

KONDA MASON

For being a rebellious, tapped-in, grounded, and tenacious journey-woman of the cosmos, your love and light has helped us unlearn and learn how to serve.