



The restored Chicken Creek in the Tualatin River National Wildlife Refuge. ©Fred Joe

Annual Benefit Report 2022

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From the President

How would you summarize 2022?

Given the number of global calamities that emerged over the past year, one could say the International Monetary Fund nailed it with the title of their 2022 annual report: Crisis Upon Crisis. Like blocks in a game of Jenga, actual and impending geopolitical, economic, social, and environmental emergencies appeared to stack upon each other in a perilously piled structure seemingly on the brink of collapse. One Jenga block in particular—the frighteningly rapid decline in Earth’s biodiversity—has the potential to bring the whole thing down in collapse.

But wallowing in doom and gloom is just not how we operate at Biohabitats. It never has been, and it never will be. Instead, we get to work and stay focused our mission. It’s what we’ve been doing for four decades, and we have no intention of stopping. Yes, 2022 marked something else: our 40th year in pursuit of our mission to restore the earth and inspire ecological stewardship.

Coming out of the COVID-19 pandemic, and undaunted by the challenges of 2022, we were more determined than ever to help our clients and partners protect and restore biodiversity, build climate resilience, and enhance environmental injustice—sometimes all in a single project. At the same time, we continued to improve our own organization and take care of one another. In the final month of 2022, we were bolstered by the fact that the 200+ signatories to the Convention on Biodiversity adopted the Kunming-Montreal Global biodiversity framework, pledging to protect 30 percent of Earth’s lands, oceans, coastal areas, and inland waters by 2030.

In this Annual Benefit Report, we share a glimpse into the stories and details behind some of our work in 2022. With every project, effort, and initiative, whether it is for our clients, the communities they serve, our own organization, or the one million species currently at risk of extinction, we learn, we grow, we share knowledge, and we carry on. Because, if our 40 years have taught us nothing else, it’s that experience, passion, solutions, and benefits can stack just as easily as challenges, and instead of weakening the overall structure, they strengthen it.

Here’s to continuing to forge building blocks – of life, hope, and resilience- in 2023 and beyond.

Be well and be wild,

A handwritten signature in dark ink, appearing to read 'KB', with a long, sweeping horizontal line extending to the right.

Keith Bowers



Catching the sunrise over California's Pope Valley during an ecological assessment.

Our Mission & Values

MISSION

Restore the Earth & Inspire Ecological Stewardship.
Inspire communities to rediscover a sense of place through preserving indigenous ecosystems, restoring biological diversity, and inspiring ecological stewardship.

REVERE WILD NATURE

Nature, and the full array of life this planet has to offer, is at the very core of what we are about. Increasingly we find ourselves living in an artificial world. A world where ecosystem processes are compromised and biodiversity is marginalized and commoditized. Nature, in its wildest and raw form, is at the essence of what we are about. Wild nature provides a blueprint for conserving, restoring, and regenerating the full expression of biological diversity and ecosystem functions to ensure our survival. It is at the heart of our collective souls.

HEAL COMPASSIONATELY

Nature is under assault. We are entering the next great extinction of flora and fauna. Our climate is shifting faster than ever before, and many of our ecosystem processes are beginning to break down. We know it's not enough to slow down or even halt these impacts. We know that what we need to do is heal by making whole our relationship with the earth and each other. The core of what we do—conservation, restoration and regeneration, is about healing. And healing embodies a sense of caring—caring for the land and caring for each other.

PRACTICE WHOLENESS

Life on Earth is interconnected, and that damage to a part entails damage to the whole. Thinking and acting whole means feeling a sense of connection to all of life—to other people, to new ideas, to the world around us. We have a responsibility to honor our obligations to future generations

of all beings and to take their interests into account when we reflect on the consequences of our actions. Accordingly, our virtues are cooperation, respect, prudence, foresight, and justice. Living by the principle of reciprocity, giving as we receive, re-creates the richness of life.

ACT WITH UNCOMPROMISING INTEGRITY

Integrity in our work is doing our best to restore biodiversity and ecological processes. We must seek ways to employ science to objectively evaluate the performance of our projects, accept our findings and continuously learn. No matter what we do, if we don't have integrity then none of our innovation, creativity, passion, commitment, synergy, or affirmation for life will mean anything to our constituency. While science should lead the way, it must be tempered by keen observation and the stories that are borne from traditional ecological knowledge. We must do what is right, even when it is difficult or less profitable.

EVOLVE TO BE THE BEST

Everything on this earth is in a continuous state of evolving, refining, improving, adapting, enhancing... changing. If we aren't evolving, we aren't relevant. Being inquisitive, curious, and probing should be encouraged and celebrated. As we evolve, we will fail, and that is many times the most important part of evolving. Learning from our successes and failures is built into everything we do. In order to be our best, we must encourage testing, objective analysis, tinkering, innovation, and creativity.

Certifiable Impact

Biohabitats is a Certified B Corporation®, which means that our overall environmental and social performance is comprehensively measured and verified by a credible, transparent, and independent third party. For that third party, we selected B Lab®, a 501(c)3 nonprofit organization that serves a global movement of people using business as a force for good.

Through a tool known as the B Impact Assessment, B Lab® provides a rigorous, point-based evaluation of a company’s practices in the areas of governance, workers, community, environment, and customers. The B Impact Assessment scores environmental and social performance. To be certified, a company must score 80. Our current score is **100.7**, and in 2022, for the third consecutive year, we scored in the top **5%** of all B Corps worldwide for governance, earning recognition from B Lab® as “Best for the World” in this impact area.

To date, B Lab® has certified more than 6,000 companies representing 150 industries in 80 nations. As a Certified B Corporation®, Biohabitats is part of a growing, global movement of people using business as a force for good.

More information about B Lab® and the B Impact Assessment is available at bimpactassessment.net.



Construction spoil, re-purposed as a campsite on a newly restored floodplain. © David Ike Photography

B Impact Scorecard

GOVERNANCE	16.2
MISSION + ENGAGEMENT	2.9
ETHICS & TRANSPARENCY	5.8
MISSION LOCKED	7.5
WORKERS	34.7
FINANCIAL SECURITY	14.9
HEALTH, WELLNESS, & SAFETY	6.0
CAREER DEVELOPMENT	7.3
ENGAGEMENT & SATISFACTION	6.5
COMMUNITY	13.7
DIVERSITY, EQUITY, & INCLUSION	6.8
ECONOMIC IMPACT	1.1
CIVIC ENGAGEMENT + GIVING	5.8
SUPPLY CHAIN MANAGEMENT	0.0
ENVIRONMENT	31.5
ENVIRONMENTAL MANAGEMENT	0.6
AIR & CLIMATE	5.4
WATER	0.5
LAND & LIFE	0.0
LAND/WILDLIFE CONSERVATION	25
CUSTOMERS	2.6
CUSTOMER STEWARDSHIP	2.3
SUPPORT FOR UNDERSERVED/PURPOSE DRIVEN ENTERPRISES	0.3

OVERALL
B IMPACT SCORE



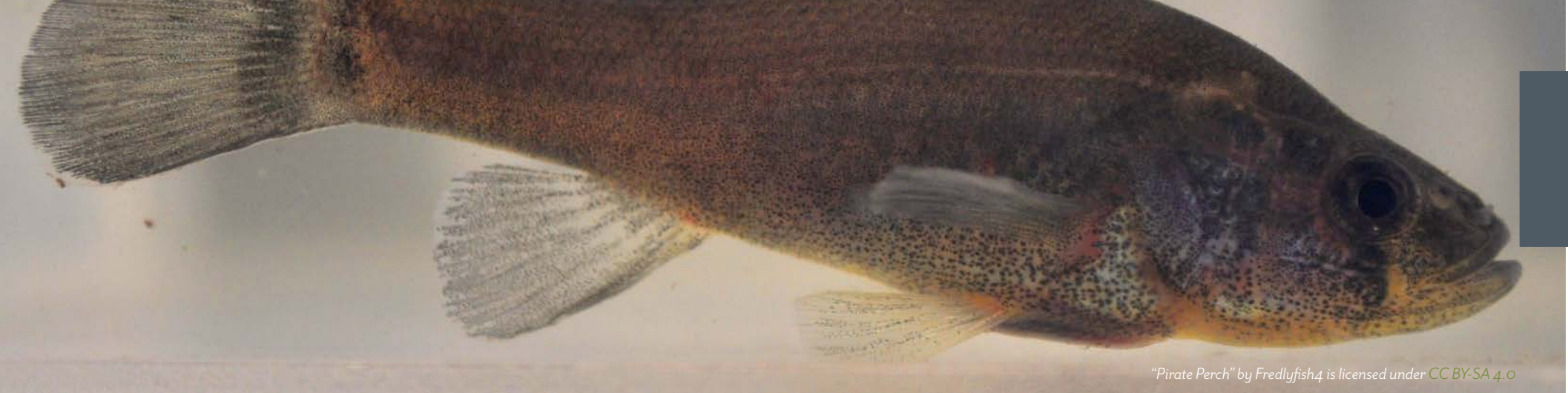
Dam removal Resiliency planning
Stream restoration Mapping **128** Ongoing projects
 Design & Build Regenerative design
 Revegetation **200** Communities
 Living Building Challenge Campus master planning
 Urban ecology Climate adaptation
 Ecological assessment
 Floodplain restoration Habitat enhancement
 Wetland restoration **Environmental justice**
 Conservation planning Biodiversity enhancement
 Permitting Integrated water strategies **218** New projects
 Low-impact development Stormwater management
 Nature-based Solutions
178 Water quality improvement
 Projects completed Regenerative design
 Concept development

Restore the Earth

We accomplished a lot last year, but numbers are only a chapter of our 2022 story. A number is no replacement for the sound of a stream liberated from the confines of a dam or the sight of a sandhill crane soaring above a restored floodplain. A number cannot convey the satisfaction of a client whose efforts have made water cleaner, safeguarded a coastal community, or created new outdoor recreational and educational opportunities for constituents.

In the pages that follow, we share just a few of the stories behind our efforts in 2022. We hope you see, through this tangible evidence, that we are advancing our mission and helping our clients make a difference – for all of life's communities.

A common watersnake (*Nerodia sipedon*) in a restored floodplain in Liberty Township, Ohio. ©David Ike Photography



"Pirate Perch" by Fredlyfish4 is licensed under CC BY-SA 4.0

Restore the Earth

A TALE OF THREE FISHES

At first glance, the portly, little pirate perch (*Aphredoderus sayanus*), the sturdy, muscular steelhead (*Oncorhynchus mykiss*), and the long, slender Pacific lamprey (*Entosphenus tridentatus*) seem to have little in common, aside from being fish. But all three have been imperiled by human activity over the last century...and all three benefited from ecological restoration projects in 2022.

A few years after hatching in the streams where they were spawned, larval Pacific lamprey transition into juveniles and begin migrating downstream and ultimately into the Pacific Ocean. After several more years, on journeys as long as 3,000 miles, they return to fresh water to spawn, and die soon afterward. It is a life cycle that has continued for 450 million years. Older than dinosaurs, the Pacific lamprey has survived ice ages and mass extinctions. But in the Columbia River Basin, where this fish has been a food source for birds, other fish, and mammals, and a significant cultural and culinary resource for Tribal communities, it is in trouble. Its numbers have plummeted to a mere fraction of its historic abundance, thanks to degraded water quality, habitat, and fish passage caused by human activity.

Like the Pacific lamprey, anadromous salmonids have played significant ecological and cultural roles in the Pacific Northwest for millennia. Until European settlers moved westward, they were also equally abundant. Records suggest that up until the mid-1800s, 10-16 million adult salmon and steelhead returned to the Columbia River each year to spawn. Today, those runs peak at two million. Again, the impacts of human activity are to blame. In the Tualatin River basin, things are particularly grim for winter steelhead, which are now listed as threatened under the Endangered Species Act. Winter steelhead spawn and hatch in fast-flowing, well-oxygenated rivers and streams, but In the Tualatin River basin, only one waterbody, Gales Creek, now provides what NOAA designates as "critical habitat." And in the town that shares its name, the creek had been altered by a dam originally constructed in the 1930s to create a



Pirate perch (*Aphredoderus sayanus*), steelhead trout (*Oncorhynchus mykiss*), and Pacific lamprey (*Entosphenus tridentatus*).



"Pacific Lamprey at the Oregon Zoo" by USFWS is licensed under CC BY-NC 2.0



Restore the Earth

swimming area. Although defunct, the Balm Grove Dam blocked and impeded the migration of winter steelhead, Pacific lamprey, and several other species, for more than 90 years.

But thanks to a project initiated by Clean Water Services, the regional water resources management utility, and implemented by Biohabitats Construction in 2022, the Balm Grove Dam has been removed, and nearly 35 miles of prime habitat have been opened back up to species that desperately need it.

“When we came to the site before beginning the project, it was heartbreaking,” said Matt Koozer, Biohabitats Senior Restoration Ecologist/Construction Manager. “So many fish were just repeatedly banging their heads on the dam, desperately trying to get upstream.”

In addition to removing the dam, we installed large wood and boulder structures that help stabilize the banks of Gales Creek while providing even more habitat and helping to improve sediment, wood transport, and water quality to the system. Today, there is little evidence that a dam ever existed at the site. Gales Creek runs free and clear, as do Pacific lamprey, winter steelhead, and several other anadromous species heading up Gales Creek to spawn.

A little over 2,500 miles due east of Gales Creek, another imperiled fish gained some much-needed habitat in 2022. The pirate perch, a diminutive but stout-bodied nocturnal fish, are rather common in the central and eastern U.S. Found in lowland streams, rivers, ponds, and backwaters, they prefer slow-moving, warm water, with pools and undercut banks where they can feast on macroinvertebrates. Up until the mid-1800s, the 1,500-square-mile swath of land between Fort Wayne, Indiana and the western end of Lake Erie was just such a place. Created by retreating glaciers of the last Ice Age, the Great Black Swamp was one of the largest wetlands in North America. Its forested, wet landscape was ideal habitat for the pirate perch. The abundance of warm, clear, slow-flowing water, woody debris, and aquatic vegetation was less than

An engineered log structure downstream of the removed Balm Grove Dam stabilizes a bank while further improving habitat. © Fred Joe



Restore the Earth

ideal, however, for the westward migrating human settler. By the end of the 19th century, the Great Black Swamp was largely drained, ditched, flattened, and converted to farmland. The pirate perch, once abundant in the pools, oxbows, and backwaters of the swamp, disappeared from Ohio by the late 1950s.

Thanks to the Black Swamp Conservancy and H2Ohio, a State run program to improve water quality in the Lake Erie and Ohio River basins, the pirate perch will regain some of its lost habitat. In a formerly farmed site along the Maumee River, a major tributary to Lake Erie, the Conservancy recognized the opportunity to restore an active floodplain while also creating the oxbow wetlands in which pirate perch, once reintroduced, could thrive and reproduce.

“While the ultimate goal of the project was to improve water quality and reduce harmful algal blooms in Lake Erie, it’s not every day that you get the opportunity to incorporate critical habitat for a State endangered species, like the pirate perch, into a project,” said Biohabitats landscape ecologist and Great Lakes Bioregion team leader, Kevin Grieser. “Pirate perch habitat characteristics became the key design drivers for the new oxbow wetlands and we can’t wait to see them swimming in them next year.”

Together with the Conservancy and Meadville Land Service, we restored 57 acres of wetlands and riparian woods. We also restored function to the floodplain and reconnected it to adjacent oxbow wetlands. The collaborative restoration transformed the site into a working landscape of hummocks, hollows, and oxbow wetlands. Together these features slow down and naturally filter excess sediment and nutrients from polluted stormwater runoff while providing abundant habitat for the pirate perch and other aquatic and terrestrial species. The Ohio Department of Natural Resources plans to reintroduce pirate perch to the site in 2024. What a homecoming that will be.

Newly restored wetland habitat along the Maumee River. © David Ike Photography



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CITY SMARTS

Across the nation and the world, urban communities are recognizing that ecosystem protection and restoration and nature-based solutions are important climate resilience strategies. Thankfully, most municipalities are also embracing the ethos that natural systems and the functions they provide ought to benefit all of their constituents. In 2022, we had the honor to work with several such communities, including two very different, but equally forward-thinking cities: Austin, Texas, and Lakewood, Ohio.

Austin is the fastest growing metropolitan area in the U.S., but its real estate market is not the only thing heating up. Increasing temperatures and wildfires have many in the already hot, arid city thinking about climate resilience. Austin’s Parks and Recreation Department (PARC) was particularly interested in safeguarding the natural systems within City parkland and the important functions they perform. Austin boasts over 17,000 acres of parks, trails, urban forests, greenbelts, and preserves. This includes iconic destinations such as Lady Bird Lake on the Colorado River, and Barton Springs Pool in Zilker Park.

Recognizing that the ecosystems within these landscapes face threats from climate change, wildfire, biodiversity loss, and intense recreational use, PARC turned to Biohabitats for help in better understanding these threats and charting the course for action. We helped PARC by conducting a climate vulnerability analysis, mapping risks of fire, urban heat island, drought, flooding, and other climate-driven disturbances along with a layer of social vulnerability. Informed by the analyses, we then developed management strategies to guide the protection and restoration of natural systems in a way that equitably safeguards ecosystem function for all Austin communities. The resulting Land Management Plan, to be finalized in 2023, defines goals, objectives, and strategies for monitoring, action thresholds, and guidance for future scenarios such as establishing climate refugia. When completed, it will inform PARC’s efforts to ensure that natural areas continue to serve the city and its residents into the coming decades. Austin may

Mexican free-tailed bats (*Tadarida brasiliensis*) emerging from beneath Austin’s Congress Avenue Bridge.



Elements of the Lakewood Climate Action Plan. © Sustainability Solutions Group

Restore the Earth

be known for its progressive music scene and bold entrepreneurship, but it is also forward-thinking when it comes to integrating ecology and equity into long-term resilience planning!

Over 14,000 miles away from Austin, on the southern shores of Lake Erie, another municipality was taking a progressive and inclusive approach to climate resiliency planning. In 2019, the City of Lakewood, Ohio made a commitment to shift to 100 percent clean, renewable energy in city facilities by 2025, and get the entire city community to zero emissions by 2035. They wanted to do so in consultation with the community and in a way that would ensure that all of their constituents—particularly those most vulnerable to the impacts of a changing climate—would benefit from the transition.

We had the privilege of helping the City create the Lakewood Climate Action Plan and integrate land management strategies with strategies to reduce greenhouse gas emissions and improve resilience. The planning team, led by Sustainability Solutions Group inventoried the City’s emissions, assessed its overall climate vulnerability, and identified opportunities for improvements. Throughout, they sought input from community members to learn what they wanted to see in the Climate Action Plan and where their needs might intersect with climate action. As the planning team’s ecological experts, we identified nature-based solutions for the management of City forests and open space to potentially deliver ecological benefits, like protected water, soil, and native habitat, while also enhancing the adaptive capacities of Lakewood’s communities.

With the Climate Action Plan in hand, Lakewood now has a comprehensive strategy, complete with a timeline and action steps, for equitably implementing sustainability efforts across the city as it shifts to clean energy and dramatically decreases greenhouse gas emissions.

From Texas Hill Country to the Great Lakes, living systems that absorb carbon, filter water, enhance biodiversity, provide habitat, and provide countless other ecosystem services for people and the broader community of life, are being restored and protected as part of resiliency planning.



Restore the Earth

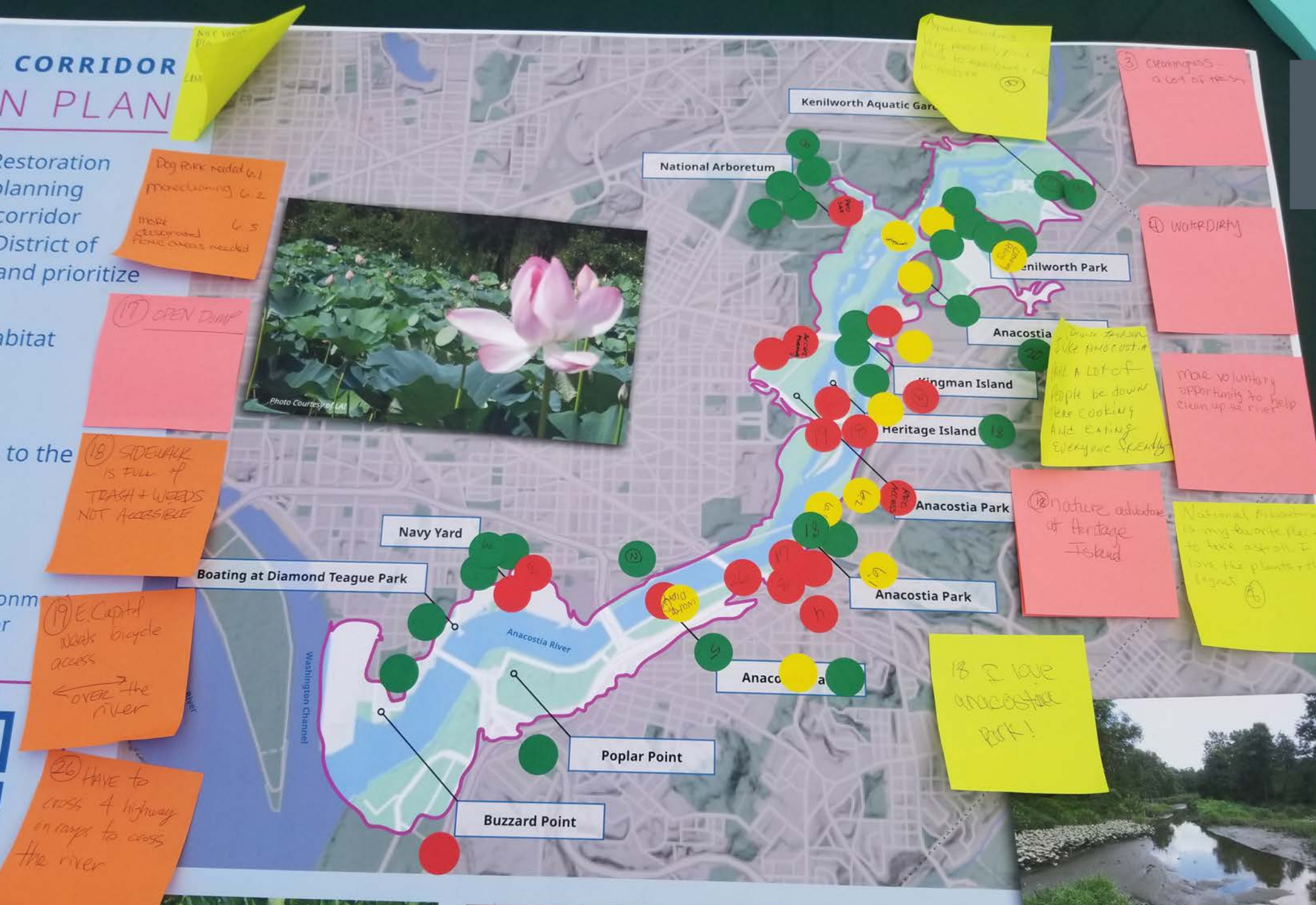
ENVIRONMENTAL JUSTICE & RESILIENCE ALONG WASHINGTON, DC’S “FORGOTTEN RIVER”

Until Europeans arrived in what is now Washington, DC in the 1600s, the Anacostia River was an abundant fishery that supported local indigenous communities and diverse wildlife. Unfortunately, the nascent capitol’s economy relied heavily upon the river as a trade and commerce hub. Subsequently, the Industrial Revolution led to extensive forest degradation, followed by further armoring of the river channel with seawalls and continual dredging. The Anacostia, along with its tidal wetlands and mudflats, suffered such severe impacts that it became known as “Washington’s Forgotten River” or simply “one of the most polluted rivers in the U.S.”

Inextricably linked to the river corridor’s environmental degradation was the neglect of those who called it home. The Nacotchtank people, driven away by settlers or killed by their diseases, were first to experience this. African Americans were second. Racist housing policies with discriminatory investment and lending practices originally limited housing options for Black Americans in the District of Columbia in the 19th century. By the 1950s, as jobs relocated to the city’s center and the U.S. Supreme Court outlawed racial segregation in public schools, a surge of white flight from Anacostia neighborhoods shifted the demographics to a majority Black community whose needs became increasingly ignored. Hastily constructed highways and industrial yards that bisected these same communities made matters worse, as did the open-burning landfill in the Kenilworth neighborhood that operated until 1968.

Meanwhile, the city’s combined sewer overflow system often discharged into the river during heavy storms further concentrating pollutants near these communities. Foul smells became the norm, as did fish with tumors and other anomalies.

Citizens share their ideas, needs, and desires for a healthy Anacostia River at a community pop-up event ©CHPlanning



Restore the Earth

The Anacostia finally benefited from ecological restoration efforts in the early 1990s, including our own groundbreaking work restoring freshwater tidal marsh at Kenilworth Marsh and Kingman Island with partners from the National Park Service, Washington Council of Governments, George Mason University, the U.S. Army Corps of Engineers, and Ecological Restoration & Management. But there was one partner noticeably absent from those initiatives: the surrounding community.

“Restoration wasn’t as inclusive as it is today,” said Biohabitats founder, Keith Bowers, when reflecting on those early projects. “We take a whole different approach now.”

In 2022, we did just that as we continued work begun in 2021 with the District Department of Energy & Environment (DOEE) on the Anacostia River Corridor Master Plan, which aims to improve habitat as well as recreation and open space amenities while addressing climate change, sea level rise, and continued urban development within the 500-year floodplain. From the outset, the project has been stakeholder-driven. Through interviews, online surveys, popup events, virtual public meetings, and a project website, stakeholders—including community organizations and local residents—are sharing what they want in a healthy river corridor. Homeowners and community leaders are showing us, for example, specifically where they would benefit from additional gathering areas, fishing spots, canoe put-ins, increased programming, and restored natural areas.

Work on the plan continues in 2023, and this kind of input is directly informing it. In holistically planning to restore habitat, enhance resiliency, increase water quality and inclusive and equitable public access to the Anacostia River, DOEE is proactively addressing three pressing issues affecting so many of the world’s cities: climate change, biodiversity loss, and environmental justice. There is a model worth following, and we are proud to be involved.

Community input guides the future of DC’s Anacostia River Corridor. © Anacostia Watershed Society



Restore the Earth

URINE FOR A HIGH-PERFORMANCE SURPRISE

According to the U.S. Environmental Protection Agency, water use in commercial buildings accounts for 17% of publicly-supplied water use in the U.S., with a significant portion for non-potable demands in restrooms and the landscape. Once used, that water is most often sent to a municipal wastewater treatment facility. In more than 700 U.S. municipalities, it does so in a combined sewer system that is also conveying stormwater. During heavy rains and snowmelt, those combined systems can overflow and result in untreated wastewater entering nearby streams, rivers, and waterways. To make matters worse, wastewater infrastructure is aging and failing in many U.S. cities, and remains grossly underfunded.

Fortunately, many developers and designers are recognizing that commercial buildings present unique opportunities to deploy innovative solutions for water quality and quantity challenges. They are intentionally creating high performance buildings-and even communities-that treat water like the precious, finite, life-giving resource that it is. Over the years, we've had the honor of working alongside many of them, as part of integrated, innovative design teams that make achievement of stringent sustainability standards like the Living Building Challenge, SITES, and LEED possible.

Take, for example, the team behind the PAE Building in Portland, Oregon, which opened its doors in 2022. Set to achieve Portland's 2050 renewable energy targets 30 years ahead of schedule, the 58,700-square-foot building generates more energy than it uses. It also meets all of its own water needs. We were honored to work with its designers, ZGF Architects and PAE Consulting Engineers (whose offices are housed in the building) to create the water infrastructure that made that possible, creating onsite systems that harvest rainwater for potable water supply and treat and recycle wastewater for reuse in toilet flushing and irrigation. The systems include 20 composting and unique fertilizer manufacturing system that processes diverted urine.

The PAE Building in Portland, OR, is positively impacting the Willamette River and local ecology.



Restore the Earth

In the early stages of work on these systems, it became clear that this team and this building could go even further in terms of its regenerative capacity. As day use facilities, commercial buildings have relatively high strength (nutrient rich) wastewater.

Together, along with collaborator AEM, we set out a goal to make the PAE Building the first commercial building in North America to convert captured urine and compost leachate into fertilizer on site. And we did it. In addition to all of its high performance features, the PAE Building recovers nutrients from managing all of its human waste through 20 composting bins that manage toilet waste and unique fertilizer system that processes diverted urine. Two types of safe, ultra-pure fertilizers are created in the building, including, a liquid nitrogen rich fertilizer and a granular phosphorus rich fertilizer.

Poised to become the world's largest certified commercial urban Living Building, the PAE Building is not only making the most of the resources that go into it, it is producing resources...all while positively impacting the Willamette River Watershed and the broader regional ecology by stewarding water and nutrients in such an extraordinary way.

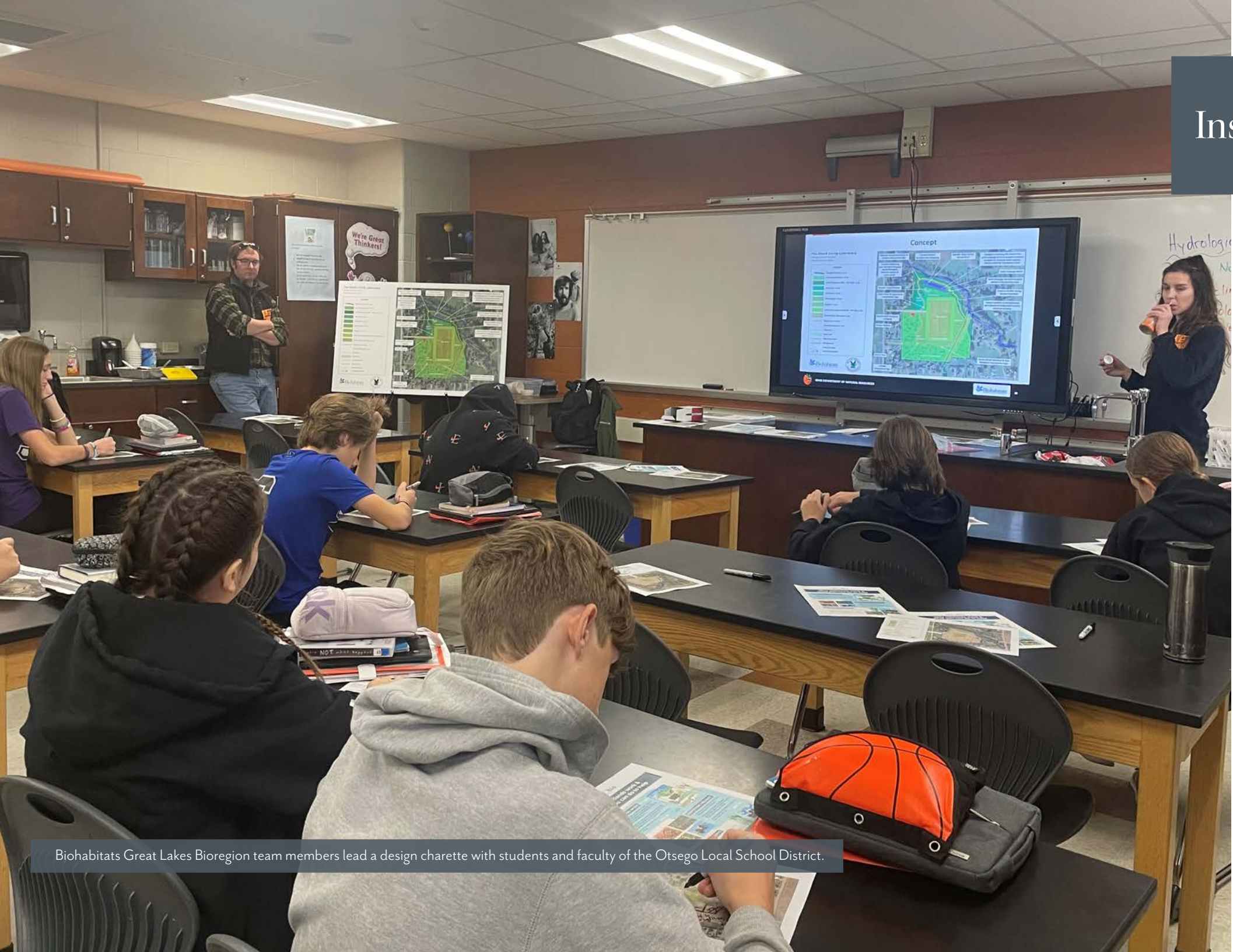
The innovative onsite water infrastructure at the PAE Building makes us smile!



Inspiring Ecological Stewardship

“Restore the earth and inspire ecological stewardship.” It’s not just our mission; it’s a positive feedback loop. In everything we do, we strive to inspire others to care for Earth’s ecosystems and join in our efforts to protect and restore them. We believe public involvement and support can make the difference between moderate success and long-term resilience and regeneration, and you’ll see this reflected in the way we approach our projects and use our collective voice.

Construction Manager Jim Favret teaches University of Virginia students about ecological restoration design and construction. ©Matthew Seibert



Inspiring Ecological Stewardship

BEYOND “OUTREACH”

In an ever-urbanized world, where people and natural systems can increasingly influence each other, communication and engagement about the work we do can be as important as the work itself. To us, “outreach” means more than reaching out. It means drawing people in, deeply listening to them, making connections between their needs and project goals, and including them in the development, implementation, and ongoing guardianship of solutions that impact them. In urban and non-urban areas alike, we bring this philosophy to every project, and our clients tend to share it. Together, we put it into action in 2022 projects. For example...

When the Black Swamp Conservancy won a grant from H2Ohio program to restore ecological function to a previously farmed, drain-tiled site along a tributary to the Maumee River—a site threatened by development and located next to a public K-12 school—they did so with the intention of having it become a living laboratory for students and a park for the rural community of Otsego, Ohio.

Working with the Conservancy, we held a charrette at the school, where students and faculty contributed ideas for the site, such as adding a trail footprint for the cross-country team and providing a longer boulder toe area where students in science classes could safely stand while taking water samples from the creek.

In addition to restored wetlands and riparian habitat, the Otsego Schools Fox-Shank Living Laboratory will include a food forest, new access to the creek, and a small agricultural field which will be sustainably planted and cared for by the Future Farmers of America.

Biohabitats Great Lakes Bioregion team members lead a design charrette with students and faculty of the Otsego Local School District.

Inspiring Ecological Stewardship

The Living Laboratory will provide students with hands-on educational opportunities, such as sampling fish and macroinvertebrates, exploring wetland, riparian, and meadow habitats, learning about the relationship between agriculture and ecology, and creating nature-inspired art...all while reducing pollution and sedimentation in Lake Erie.

Students also helped us develop interpretive signage that will help students and visitors understand the landscape and its connection to the Maumee River, Lake Erie, and the region's ecology and historical context within the Great Black Swamp. The school will not only take part in bringing the restored site to life when they install native plants in 2023; they will study and steward it into the future.

Students share their ideas for the living laboratory site during a design charrette.



Inspiring Ecological Stewardship

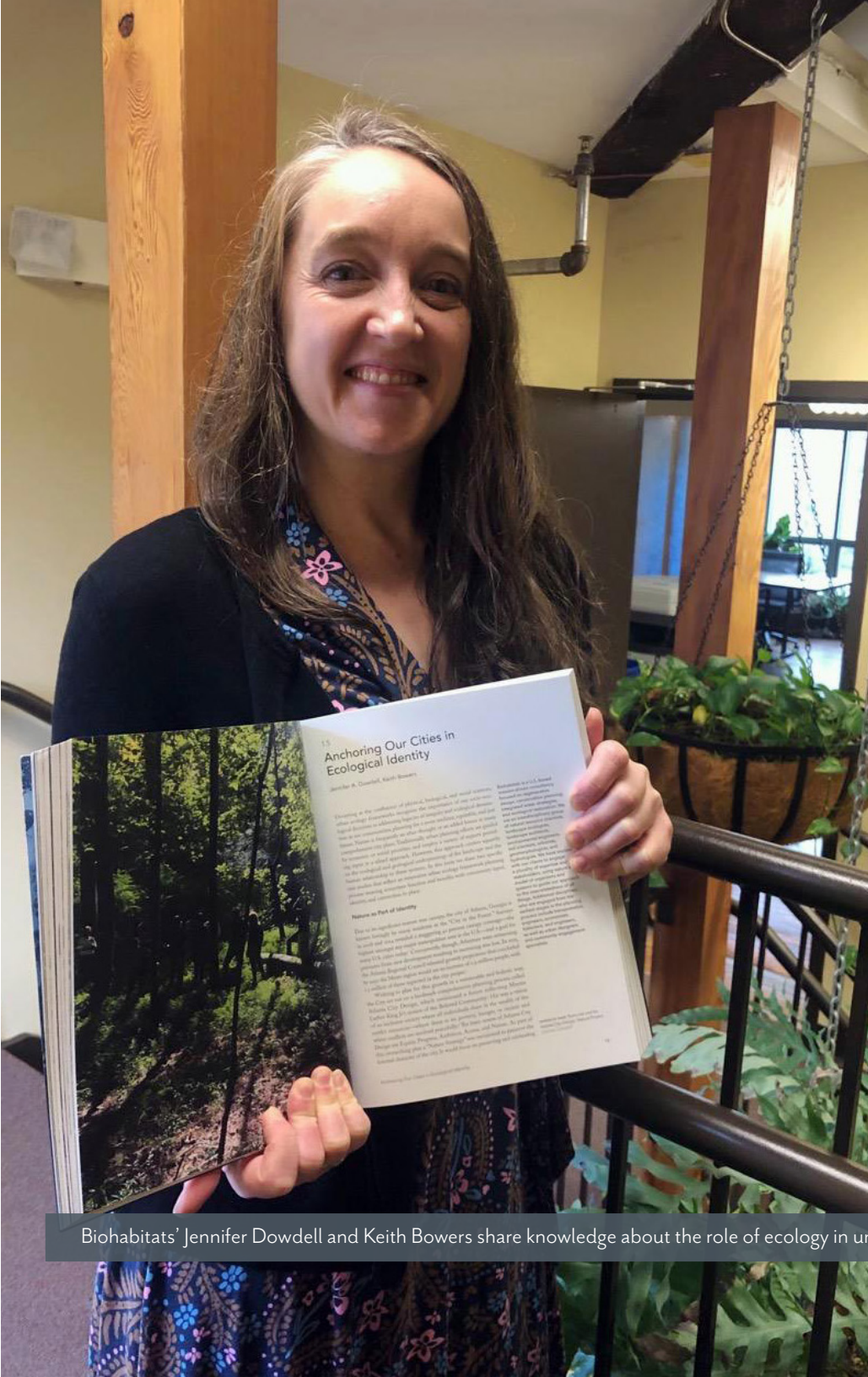
SOME OF US MAY BE INTROVERTS, BUT WE'RE NOT QUIET

From our earliest days, we have been a learning organization, learning from mistakes and gaining knowledge and expertise through experience. Over the last four decades, we have eagerly shared our accrued knowledge with allied industries, organizations, and educational institutions. 2022 was no exception, and we are happy to share some examples.

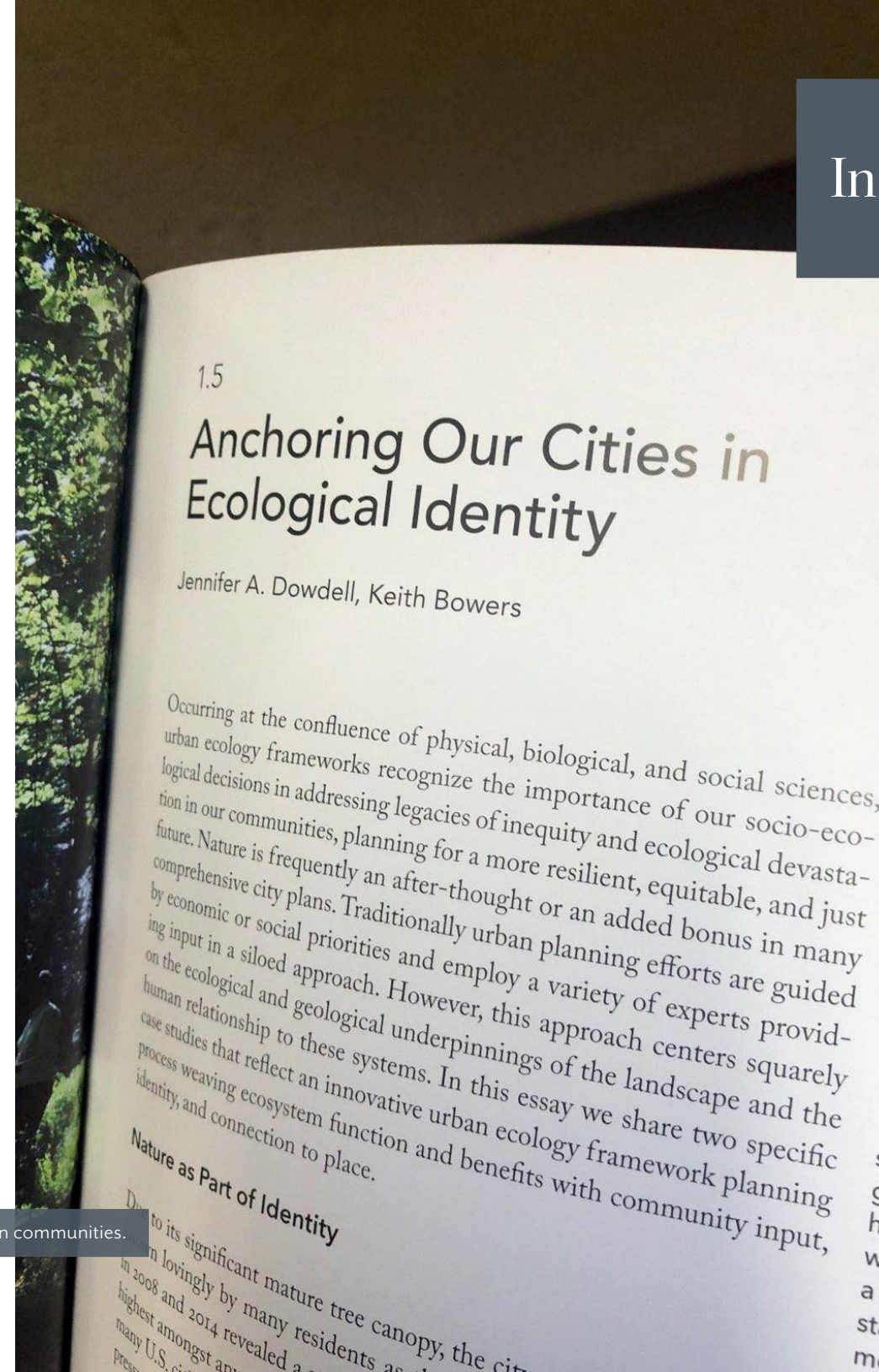
- To help synthesize knowledge about nature-based solutions, align it with opportunities within South Carolina, and create practical and equitable steps for implementation, we collaborated with The Nature Conservancy, Clemson University's Resilient Urban Design Program, the City of Charleston, and allied design firms to present the Nature-Based Exchange. The Exchange, which continues into 2023, is a series of practical and outcome-based workshops that aims to bring together local partners to discuss and develop natural and nature-based solutions for South Carolina.
- Our Biomimicry Fellow, Elena Stachew, wrapped up her fellowship in 2022. Through this unique partnership with Biohabitats, the University of Akron, the Ohio Department of Natural Resources' Office of Coastal Management, and the Cleveland Water Alliance, Elena was able to share and begin to apply her study of root systems for potential use in developing of solutions for protecting and restoring the stability and function of urban shorelines.
- We supported the Rewilding Institute by sponsoring several episodes of the Rewilding Earth podcast. These episodes brought the insights and voices of ecological restoration experts to more members of the conservation community.
- We continued producing Leaf Litter, a free digital publication intended to inform and inspire the ecological restoration, conservation, and regenerative design community. Our spring 2022 issue celebrated the beginning of the UN Decade on Ecosystem Restoration by examining

Principal Engineer Doug Streaker describes bank erosion in a D.C. park. ©Rich Riggins

Inspiring Ecological Stewardship



Biohabitats' Jennifer Dowdell and Keith Bowers share knowledge about the role of ecology in urban communities.



Ecological Restoration: Where it has Been and Where it is Going, and our fall issue examined the role of Fire on the Landscape.

- Keith Bowers and Jennifer Dowdell contributed a chapter entitled “Anchoring Our Cities in Ecological Identity” in Applied Research & Design Publishing’s 2022 book, [*Landscape Approach: From Local Communities to Territorial Systems*](#), a collection of essays that “promote a landscape approach as a method for understanding and addressing the complex interdependent issues of environmental and climatic change.”
- Keith Bowers joined vanguards of South Carolina’s climate-conscious future, delivering one of Charleston Climate Coalition’s “2022 Surge Sessions” to showcase innovative climate solutions.
- We shared strategies, approaches, techniques, and lessons learned with contemporaries via posters and presentations at 26 local, regional, and national conferences, and events.
- We inspired tomorrow’s practitioners by teaching courses, leading field trips, and guest lecturing for the following institutions: California Polytechnic State University, Cleveland State University, Columbia, Harvard University, Morgan State University; Otsego School District, University of Colorado-Denver; University of Maryland-College Park, University of Pennsylvania, University of Tennessee, University of Virginia.
- We engaged community members and young students in ecological education and experiences by volunteering for the following schools and organizations: Alpha Kappa Alpha Sorority, Baltimore Blue + Green + Just, Baltimore Ecosystem Study, The Community School, ESA EcologyPLUS, Gilman School, Graceland Park O’Donnell Heights Elementary/Middle School, Lillie May Carroll Jackson Charter School, Missouri Public Schools, Roland Park Country School, Loch Raven Improvement Association, First Mt. Olive Freewill Baptist Church, Friends of Herring Run, Friends of Gwynns Falls Leakin Park.

Inspiring Ecological Stewardship

SUPPORTING HANDS

Throughout 2022, across all Bioregion offices, our team members donated countless hours of personal time to support a multitude of organizations and initiatives that align with our mission. They volunteered to plant trees, shrubs, and grasses; install live stakes; remove invasive plants; clean up parks; teach preschoolers about nature; remove trash from a community raingarden, introduce high schoolers to environmental careers...the list goes on and on.

In June of 2022, we participated in “Make A Difference Week.” Coordinated by the Society for Ecological Restoration, this event unites people in a worldwide community of care for our planet. As members of that community, we were thrilled to participate.

- Our Southern Rocky Mountain Bioregion team helped the Left Hand Watershed Center install supplemental plantings along reaches of Left Hand Creek that had been restored following the devastating floods of 2013. Our team got their hands dirty planting loads of native trees and shrubs, including Plains cottonwoods (*Populus deltoides* ssp. *monilifera*), narrowleaf cottonwoods (*Populus angustifolia*) and peachleaf willow (*Salix amygdaloides*), and snowberry (*Symphoricarpos albus*).
- Team members from our Chesapeake Bay Bioregion office provided a safety boat and crew for the Waterfront Partnership of Baltimore’s (WPB) annual “Floatilla,” a clean water awareness and fundraising event that supports trash removal from Baltimore Harbor and environmental field trips for Baltimore City students. The pirate-themed event guided paddlers to various harbor “treasures” including the WPB’s famous Mr. Trash Wheel, and Biohabitats-designed floating wetlands.
- Members of our Great Lakes Bioregion team volunteered to help The Nature Conservancy remove invasive species at the Lucia S. Nash Nature Preserve. Their removal of invasive buckhorn (*Rhamnus cathartica*) made a visible difference in the lovely wetland complex.

Biohabitats Southern Rocky Mountain Bioregion team volunteering at the Left Hand Watershed Center’s volunteer planting day.



People & Culture

Biohabitats mission is big, and to accomplish its scope, we start with our people. We directly connect every part of our operations to our values system to develop sustainable and resilient internal programming capable of supporting a workforce that *Restores the Earth and Inspires Ecological Stewardship*.

In 2022, the newly created People & Culture Leader (PCL) position worked to further stitch our values system into our policies and working practices by connecting our operations and creating a People & Culture practice. We worked to engage and support our team members, and to strategically weave resources, benefits, and advocacy into a healthy internal ecosystem.

We kicked off the People & Culture practice with a data gathering, analysis, and planning phase.

We brought in a third-party consultant to assess our working practices and operating policies, a wellness coach as a partner to the PCL, and we conducted personalized one-on-one wellness interviews with every single team member in the firm to accurately assess our current level of engagement, wellness, and inclusion.

Biohabitats Construction team members visited a site they restored several months earlier. © Fred Joe



People & Culture

PRACTICING WHOLENESS: STRATEGIC AND MINDFUL CONNECTIONS

This year Biohabitats experienced immense growth in our workforce and brought on 22 new team members.

We focused our efforts on updating our operating practices to account for this growth, adjust to shifts in the workforce, and to facilitate a work environment that prioritizes equitable, holistic, and sustainable practices throughout the team member life cycle.

- Upgraded onboarding and new hire training program
- Balanced organizational structure in connection with our professional advancement program
- Improved transparency, communication, and engagement practices
- Strengthened collaboration through systems-based workshops and summits
- Hired third-party and external consultants to facilitate operations analysis and provide team member support
- Encouraged full use of our Training and Continuing Education Program

Biohabitats’ Sarah Emrich, Sydney Salzwedel, and Austin Vong enjoy Chiliween 2022 at the Chesapeake & Delaware Bays Bioregion office.



People & Culture

HEALING COMPASSIONATELY: WELLNESS & RESILIENCY PRIORITIES

Through our data analysis and assessment of the needs of our workforce, we discovered priority areas that needed immediate support in 2022.

To address burnout from pandemic stress, we hired a leadership and emotional wellness coach as a resource for team members to find support for both personal and work challenges.

We reconfigured our workloads, strategically timed our project and proposal deadlines, and balanced capacity with more hiring to provide relief to team members.

We clarified mechanisms for team members to access support networks by facilitating advocate and mentorship connections and increasing communication and informational sessions around our benefits programs.

Working with our leadership, we built infrastructure capable of withstanding external and internal pressures based on integrated feedback from the wellness interviews and the third-party consultant’s analysis. We strategically aligned initiatives, programs, and projects to balance the Biohabitats ecosystem in consideration of new and changing roles, as well as through a diversity and equity-first lens.

Senior Ecologist Susan Sherrod performing an ecological assessment at Pecos Canyon State Park.



People & Culture

EVOLVING TO BE THE BEST: DIVERSITY, EQUITY, AND INCLUSION PROGRAM

Biohabitats hired Flexability, an equity and inclusion firm whose mission is to create intersectional equity at work. Flexability conducted one-on-one interviews, focus groups, and solicited a company-wide survey to provide recommendations for Biohabitats diversity, equity, and inclusion practices.

Combined with personalized wellness interviews, Biohabitats took the recommendations from Flexability's analysis to create a Diversity, Equity, & Inclusion Program with a robust budget, driven by a diverse group of team members with a direct line of communication to leadership.

Initial efforts of the program started in 2022 and will continue throughout 2023 and beyond.

- Allocated \$55,000 to external partnerships dedicated to increasing opportunities for historically marginalized groups within the ecological restoration industry.
- Allocated \$80,000 to additional DEI internal programming.
- Four HBCU interdisciplinary internships for people of color and women with the intent to provide post-internship career and network opportunities.
- Submittal of JUST recertification application with intent to align Biohabitats policies and programs with JUST's diversity and equity requirements.
- Analysis and revision of recruiting, hiring, and compensation practices to eliminate inequities.

A swallowtail butterfly (*Papilionidae*) on buttonbush (*Cephalanthus occidentalis*) near a restored stream in Washington, D.C. © Rich Riggins



People & Culture

**ACTING WITH UNCOMPROMISING INTEGRITY:
THE INFINITE RIPPLES OF PARTNERSHIP**

We believe that advancing and supporting aligned missions helps generate lasting, positive change. In 2022, we remained committed to initiatives such as 30X30, the Global Alliance for the Rights of Nature, the Earth Charter, Clean Water is Good for Business, and We Are Still In. We also maintained our status as a B Corp and member of 1% for the Planet.

Through our Corporate Contribution Program, we provided \$111,637 to nonprofit organizations through sponsorships and donations of dollars and time. This includes \$1000 donations to nonprofits chosen by winners of our quarterly team member “Golden Acorn Award,” which honors staff who embody our mission and values.

Biohabitats team members and project partners take a break from fieldwork for a selfie.



Praying mantis (*Mantodea*) found near a restored stream.

People & Culture

Additionally, in recognition that large-sum, multi-year partnerships create lasting impact, we allocated \$85,000 to three mission and values aligned organizations.

Landscape Architecture Foundation Fund

Biohabitats has committed \$25,000 in support of the Landscape Architecture DEI Fund Campaign, a first-of-its-kind program for BIPOC students of landscape architecture. The program provides recurring financial awards, annual paid internships, and a network of mentors.

Society for Ecological Restoration Fellowship Program

Biohabitats has agreed to sponsor SER's Restoration Fellows Program at \$30,000 each year for three years. The program provides funding for fellowships for minority or underserved community in North America. Fellows receive a living wage and receive real-time ecological restoration career opportunities from SER, linking researchers, practitioners, land managers, and community leaders to restore ecosystems and human communities.

Rewilding Institute

Biohabitats has formed a \$30,000 partnership with and sponsors The Rewilding Institute's podcast and additional media. The Rewilding Institute advances landscape-scale conservation by publicly providing research and promoting dialogue between practitioners to practically achieve high impact conservation and rewilding.

Biohabitats strategically allocates its contributions and sponsorships between these large-sum partnerships and between a variety of smaller, localized organizations. It is our hope that in spreading resources between broad and targeted initiatives that we are able to create maximum impact to advance our mission and a collective force of good.

Symbiotic Partnerships

We designed our Corporate Contribution Program to enhance the impact of our donated dollars and services. While we continued to provide one-time donations to many of our partners, we shifted our focus toward larger sum donations that support deeper, longer-term partnerships that better advance aligned missions and generate lasting, positive change.



**FOR THE
PLANET®**

Biohabitats 2022 1% for the Planet Donation Beneficiaries

- | | | | |
|----------------------------------|------------------------------------|---|--|
| 1% for the Planet | Groundwork Hudson | Native American Fish and Wildlife Society | The Nature Conservancy |
| Alliance for the Chesapeake Bay | Hawthorne Valley Association | Ocean Blue Project | The Rewilding Institute |
| Black Swamp Conservancy | Howard County Conservancy | Ohio Wetlands Association | The Southern Appalachian Highlands Conservancy |
| Chagrin River Watershed Partners | Irvine Nature Center | Oregon Wild | Tinker’s Creek Watershed Partners |
| Charleston Climate Coalition | Johnson Creek Watershed Council | Santa Fe Conservation Trust | Waterfront Alliance |
| Chesapeake bay Trust | Landscape Architecture Foundation | Santa Fe Conservation Trust | Wissahickon Trails |
| Clackamas River Basin Council | Left Hand Watershed Center | Society for Ecological Restoration | World Fish Migration Foundation |
| Colorado Trout Unlimited | Lower Columbia Estuary Partnership | South Carolina Environmental Law Project | |
| Cool Effect | Metro Denver Nature Alliance | Spa Creek Conservancy | |
| Groundwork Bridgeport | Metro Denver Nature Alliance | The Community Ecology Institute | |



People & Culture

HEADWATERS

We are proud to share [Headwaters: A Guide to Biohabitats’ Benefits, Policies and Cultural Practices](#). We encourage you to explore how we operate Biohabitats, share and borrow what works for you and offer us your thoughts and suggestions.

Headwaters is a purposeful attempt to find a better way to run an organization that is good for people as well as all the species with whom we share this planet. It is framed by important questions: How can we reshape business that prizes cooperation, humility, and long-term thinking? How can our business serve ecological regeneration and conscientious consumption? In our work and operations, how can we celebrate all life on this planet, including the uniqueness, diversity, and evolutionary potential of all species?

Headwaters codifies our practices, ensures that our corporate policies and benefits comply with prevailing laws and regulations, and provides a framework, moral compass, and ground rules that allow us to move in the same direction, with purpose, perseverance, and passion.

It prompts us to step-back and be reminded of our organizational philosophy, to continually question its usefulness, and to seek better ways of operating our business and advancing our mission. It also provides a useful introduction to new team members who are joining us on this journey.

Biohabitats Construction’s Rafael Guzman, Matt Koozer and Jose Velazquez during fish salvage prior to dam removal. © Here Today Photography



“There is something to the art of the hard work...the dirt under the fingernails.”
- Matt Koozer, Construction Bioregion Team Leader

Our 2022 Team

We are a mission-driven firm, united by our shared values. But we are also fueled by our individual passions and our desire to collaborate and have fun. Our culture serves as the foundation for how we do what we do. To us, it is as worthy of stewardship as the ecosystems we work to protect and restore.

Palak Agarwal	Jennifer Dowdell	Christopher Matroniano	Rachel Spadafore
Miguel Arteaga	Aiman Duckworth	Jonathan Melgarejo	Elena Stachew
Bryan Arvai	Sarah Emrich	Rachael Miller	Doug Streaker
Jose Avalos	Erin English	Jennifer Missett	Christopher Streb
Katherine Bartter	James Favret	Eliza Month	Mary Talley
George Battersby	Lisa Feather	Erin Mundorf	Justin Taylor
Joseph Berg	Adam Feuerstein	Peter Munoz	Susan Thamavong
Jordan Beyer	Sera Fleishman	Amy Nelson	Sergio Tovar Garcia
Nels Beyer	Antonio Garcia Ordonez	Jensen Noel	Michael Trumbauer
Keith Bowers	Meghan Gloyd	Jessica Norris	Danielle Ursprung
Edward Brown	Kayla Goldstein	Kevin Nunnery	Jacques Varvel
Claudia Browne	Kevin Grieser	Justin Park	Leopoldo Vazquez
Tristan Burwell	Crystal Grinnell	Jeffrey Payson	Jose Velazquez
Quinn Caralle	Rafael Guzman	Reynaldo Perez	Reyes Velazquez
Sarai Carter	Hanna Harper	Michael D Peterson	Austin Vong
Olin Christy	Kelsea Hilditch	Rose Marie Price	Scott Wallace
James Cooper	Suzanne Hoehne	Chris Rehak	James Way
Tanaira Cullens	Dillon Houshour	Julia Richter	Laura Wildman
Kevin Dahms	Matthew Koozer	Sarah Roberts	Josh Wllson
Russell Daniels	Miranda Lepek	Juan Rovalo	Rebecca Winer-Skonovd
Antanea Davis	Harold Leverenz	Andrea Rutherford	Shayla Woodhouse
David DeKrey	Michael Lighthiser	Bryon Salladin	Gregory Zuknick
Thomas Denbow	Brett Long	Sydney Salzwedel	
Azade Diykan-Hubbell	Brooke Marshall	Susan Sherrod	
Sunny Dood	Jorge Martinez	Vince Sortman	

A person with a backpack is using binoculars to look over a coastal landscape. The landscape features a body of water, a distant shoreline, and a sky with scattered clouds. The foreground is filled with green and brown vegetation.

Looking Ahead

Without giving too much away, 2023 is going to be a big year for Biohabitats that requires extensive strategic operations and organizational planning.

Throughout the planning process and the updates to our systems, diversity, equity, and inclusion considerations will steer the ship to ensure Biohabitats remains true to its values, its mission, and the people who support our ecosystem.

In 2023, we will:

- Finalize our JUST certification.
- Provide increased training opportunities.
- Connect team member development to advancement.
- Engage in communication and leadership training.
- Plan and prepare for a Carbon Accounting & Sustainability Program.
- Conduct a strategic planning series to align Biohabitats' mission, values, and culture with our operating practices and future growth potential.
- Continue support of the Landscape Architecture Foundation DEI Fund Campaign and additionally expand our own internship program to include and support the foundation's Ignite Internship Program.

Biohabitats' Jessica Norris conducting a site survey on the South Carolina coast.



The Decade on Ecosystem Restoration: It's on.



UNITED NATIONS DECADE ON
**ECOSYSTEM
RESTORATION**
2021-2030



**FOR THE
PLANET.**



Biohabitats

Restore The Earth & Inspire Ecological Stewardship.

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