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SPECIAL ISSUE
Science communication in unexpected places

PRACTICE INSIGHTS

Climate science on the farm: connecting community to research through movement and creative action

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Abstract

Effectively addressing the climate crisis at scale in a timely manner will require novel engagement strategies that move beyond laboratory findings and policy dictates. In this practice insight, we present the Moving Farm Tour, a movement-based, farm- and community-centered exploration of the intersection of art and culture with agriculture and climate change. Through this model, we highlight the use of dance and creative engagement as tangible mechanisms for learning about, sharing, understanding and creating new perspectives. Additionally, we demonstrate the value of not only bringing science (and scientists) out of the lab, but of establishing a visceral, physical connection with place and community. Our collaborative efforts have resulted in a scalable, replicable model that demonstrates how live, interactive experiences are useful for cross-sector learning, broadening perspectives, fostering community building, and inspiring novel approaches to collaboration that can lead to better outcomes for researchers, industries, communities, and the planet.

Keywords

Science and technology; art and literature; Public engagement with science and technology; Community action

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We think we know the soil
It is many things:
Chestnut brown
Black gold
A bed for grass
A pecan's pillow
A giver of fruit
The smell of home
The red-rich life beneath a parking lot
Where ground meets foot meets water
But there is more here to know
To absorb, to unearth, to dig into
Carbon transformations
Microbes blooming
Cycles and cycles and cycles of life
The ground that is our future
Listen, look, feel
There is a message here, in the
nematodes and geosmin, fungilassos and glomalin, being born
beneath your feet
Honor our gifts
Keep us happy
We have been here
since the dawn of time
We will be here past your tomorrows
Let us tell your story
By Erin Roberts © 2022

As the climate crisis continues to worsen, the need for truly transformative communication is urgent — not only to inform, but to invite, provoke, and sustain meaningful change. Individuals from sectors and communities across society must work together to surface important questions, share their perspectives, and co-create novel approaches that come from a place of mutual respect and provide mutual benefits.

Much has been written about communication strategies for motivating action on climate change, focusing variously on messenger, content, and tone [Geiger et al., 2025]. Too often, science communication efforts fall back on the top-down, fact-based deficit model approach that is seen by many as inauthentic, technical, stilted, and one-directional [Reincke et al., 2020]. Rather than inspiring action and engendering trust, this tactic often results in opposition to research-based recommendations [Kricorian et al., 2022] and even outright rejection of proposed deployment of technological interventions [White, 2025].

By contrast, embodied and creative engagement (e.g. dance, storytelling, and other artistic forms) offers powerful tools for making climate science lived, relational, and deeply human, and not just a set of facts [Badaki, 2020; Lerman, 2014; Unsicker, 2016]. Research has shown that people experience stronger emotional activation when viewing artistic visualizations of climate data compared to traditional scientific presentations, suggesting that art can help bridge the political divide over climate change [Li et al., 2023]. The

intersection of place, dance, and science in addressing climate change creates transdisciplinary learning spaces that open new possibilities for relationship, understanding, and action [Bentz, 2020; Kagan, 2015; Simpson, 2014].

The concept of embodied, place-based learning finds deeper theoretical grounding in Indigenous knowledge systems that position land itself as pedagogy. Simpson's framework of "Nishnaabeg intelligence as diversity" offers a crucial principle for climate communication: rather than seeking universal solutions, we must create space for multiple ways of knowing and being that emerge from relationships to land and place [Simpson, 2014]. Given the large carbon footprint of agriculture, farm communities are increasingly targeted as proving grounds for climate mitigation efforts [Yang et al., 2024; Davis, 2023]. Artistic engagement can allow us to access these diverse intelligences and offers important insights for climate communication efforts in agricultural contexts.

In this practice insight, we introduce the Moving Farm Tour, a participatory performance and community engagement initiative of Dance Exchange's *Future Field*s project that transforms working farms into spaces for artistic exchange, ecological learning, and community dialogue. This novel program demonstrates how integrating embodiment with place-based learning and co-creation of knowledge helps generate meaningful, yet unexpected, outputs (including the poem above). While seemingly far from traditional science communication approaches, these activities can effect behavior change that will result in true impact [Dudo & Besley, 2019].

We aim to 1) demonstrate how embodiment can be used to broaden the scope of who takes part in discussions (and decisions) about the development and implementation of technologies to address climate change, 2) showcase how to effectively use the process of co-creation to generate trust, community, and impact, and 3) provide an understanding for the importance of the body in the practice of science communication, and science itself, to holistically address the climate crisis.

1 ▪ *Future Fields* and the Moving Farm Tour: a living exchange of movement, story, and change

Launched in 2020, *Future Fields* is a performance and community-rooted initiative that weaves together climate science, agriculture, and the arts. Through partnerships that honor the knowledge, leadership, and ongoing efforts of local communities, it creates space for reciprocal collaboration among farmers, scientists, artists, and residents across rural, suburban, and urban landscapes within the United States. *Future Field*s invites all involved to reimagine our relationship with land, food systems, and one another. At the heart of this work is a deep commitment to collective action — grounded in creativity, care, and community.

*Future Field*s builds on Dance Exchange's decades of work at the intersection of art and science — animating and deepening scientific inquiry through embodied practice, performance, and public engagement [Lerman, 2014]. Dance Exchange was founded in 1976 by choreographer Liz Lerman, whose vision established performance as a space for inquiry, dialogue, and community connection. Under the current artistic leadership of Cassie Meador, the organization has continued to expand this legacy, supporting

performance as a generative site for environmental learning and future-making, and weaving scientific and artistic inquiry with the wisdom and visions of communities. With *Future Fields*, this tradition evolves further — centering performance as a method for communal learning, climate engagement, and intergenerational collaboration in service of more embodied, resilient, and just futures.

The Moving Farm Tour (MFT) grows directly out of this lineage, starting with Ms. Meador's creation of the Moving Field Guide, a nationally recognized model that connects artists, environmental specialists, and community knowledge keepers to the natural world through movement and story [Meador & Twery, 2024]. During Dance Exchange's LandLab residency at the Schuylkill Center for Environmental Education, three of this paper's authors (Christina Catanese, Dr. Jamē McCray and Ms. Meador, each a leader in arts, environment, and climate), adapted and applied the Moving Field Guide approach in the creation of the *Remembering Water's Way* project.

From there, the idea for the MFT was sparked based on conversations with partners from the farming and scientific communities, including author Dr. Geoffrey Hunt, thereby incorporating different groups into the Moving Field Guide's participatory, site-responsive practices.

2 ▪ What happens on a Moving Farm Tour?

Now a core strategy of *Future Fields*, the MFT is a participatory performance and community engagement model that brings artists, farmers, scientists, and local residents together on working farms to explore the intersections of agriculture, ecology, and culture. Rather than a typical performance or a static visit, the MFT transforms the farm itself into a stage, classroom, and gathering place — an evolving story, a choreographed walk, and an invitation into dialogue, learning, and connection with the land, each other, and the urgent questions of our time.

Each MFT is uniquely shaped by its setting and community, with sites selected in collaboration with local partners who bring forward urgent ecological, cultural, or community questions connected to farming. Audiences for the MFT are gathered based on relationships held by farms and other partners, drawing from existing connections, and leveraging the MFT to build new ones. Across all sites, the experience is anchored in three interwoven elements: Gathering, Moving and Making.

GATHERING. At the start of each tour, participants (including community members, farmers, artists, and scientists) come together to meet one another, share intentions, and ground in the place and its people. It's where stories begin: a farmer reflects on the land, a scientist shares insight into soil health, or a local elder recounts the history of growing in their community. These stories open the space for listening, connection, and collective witnessing.

MOVING. Movement, both literal and symbolic, unfolds alongside the progression of the tour. Participants walk through fields, orchards, or greenhouses alongside an intergenerational ensemble of Dance Exchange artists and local movers. Performance emerges from the land and its stories: a dance becomes the embodiment of changing weather patterns; a duet explores the labor of harvest; movement translates the rhythms of farming life into something felt and shared.

MAKING. The tour culminates in a space for making: making art, making meaning, and making plans. Through facilitated dialogue, creative expression, or a shared meal, participants reflect on what they've experienced. This is where visioning happens — ideas for change take root, stories become strategies, and new collaborations begin to grow. We imagine, together, a future that is just, sustainable, and alive with possibility. Audiences are not just observers; they are invited to move, respond, and co-create.

Because the MFT is deeply rooted in local context, no two tours are the same. In one location, the focus might be on regenerative soil practices and Indigenous foodways; in another, urban farming and access to clean water. What stays constant is the commitment to collaboration, honoring local knowledge, and activating embodied experiences that connect people to each other and the land. In this way, the MFT becomes a dynamic form of community storytelling, visioning, organizing, and action.

What follows are snapshots of how these core elements are informing and emerging through three MFTs, each grounded in its own context and led by diverse collaborations. We provide an overview of each MFT and include a qualitative assessment of impact, using reflections from partners and participants, observations of active attendee engagement during MFTs, and feedback gathered during creative development via Liz Lerman's Critical Response Process [CRP] [Lerman & Borstel, 2003].

3 · Stories from Moving Farm Tours

MFT sites were selected to reflect the diversity of ecologies, political contexts, and cultural histories shaping agriculture across rural and urban contexts in the U.S. The project intentionally assembled a creative team embedded in distinct regions, allowing for the development of strong local partnerships and sustained collaboration with farms and farmers, along with scientists, teachers and students:

- Ms. Meador, based in Maryland, partnered with ECO City Farms in Bladensburg, MD;
- Dr. McCray, based in Delaware, connected with Sankofa Community Farm in Philadelphia, PA;
- Ms. Catanese, based in Michigan, partnered with W.K. Kellogg Biological Station in Hickory Corners, MI.

Data and insights for this practice were gathered through arts-based, participatory methods embedded in the MFT. Core strategies included participant observation and field notes, storytelling and narrative elicitation during workshops and tour gatherings, and the aforementioned CRP to collect structured feedback from partners and audiences. Documentation included field notes, recordings of dialogue, poems, and movement phrases generated during sessions.

These approaches prioritized relationships, experience, and co-creation over formal data extraction. As such, no demographic information about participants was collected or retained for any of the MFTs. Since MFTs prioritize creative engagement and community benefit, documentation varied across sites and participant voices were not exhaustive.

Analyses are interpretive, offering insight into emergent, place-based learning rather than generalizable outcomes.

Qualitative materials were examined using thematic analysis to identify recurring ideas about participant learning, connection to place, intergenerational collaboration, and engagement with climate science. Artistic artifacts and participant reflections were interpreted collaboratively and sometimes revisited with partners to ensure fidelity to lived experience.

3.1 ▪ *GATHERING — W.K. Kellogg Biological Station (Hickory Corners, MI)*

The W.K. Kellogg Biological Station (KBS) is a research facility of Michigan State University with a mission to increase understanding of natural and managed ecosystems and their linkages to society. KBS includes over 3,873 acres of land, including one of the National Science Foundation's Long-Term Ecological Research (LTER) sites.

Scientist collaborators from KBS first became involved in *Future Field*s due to an expressed interest in art/science collaboration, and a desire to explore innovative means of broadening the impact and accessibility of the science of climate and agriculture. Their research focus on the soil microbiome formed a content foundation for the artist team's creative development.

In 2021, the *Future Field*s team partnered with KBS's K-12 Teacher Collaborative Summer Institute, presenting aspects of MFT tools to Michigan educators. Teachers were recruited through KBS's existing communication channels to promote professional learning events for teachers. Dr. Tayler Ulbrich, KBS Associate Director for Engagement, presented her research on how plants interact with the diverse world of life in the soil [Ulbrich et al., 2022]. She explained how plants exude molecules from their roots to signal one another and attract beneficial microbes, and discussed the challenge of studying the connections and interactions happening invisibly, yet essentially, beneath our feet.

The *Future Field*s team subsequently led the group of speakers and participants through collaborative movement-making in response to the content shared by Dr. Ulbrich. This led to a rich dialogue around climate change, soil microbiology, and kinesthetic learning methodologies in and outside of the classroom.

As Dr. Ulbrich reflected, "it was a new experience to think about my science through the lens of movement and dance. Since we can't see it, people often struggle staying engaged with talks about soil and microbes. But as our hands became the roots and microbes, I felt us all connecting with the science. I'm curious to see how we could use similar techniques to help other audiences, like farmers, gain a deeper understanding of life below ground."

Later in 2021, Dance Exchange collaborated with Dr. Hunt, then at the American Society for Microbiology (ASM), for *Research Reimagined: Moving with Microbes* (*Research Reimagined: Moving with Microbes*, 2021). This online event used the society's marketing network to recruit ASM member scientists to engage with artists and farmers from around the country, who had previously been involved with Dance Exchange, into art-infused, interactive conversation and engagement about soil microbiomes and the ecosystem services they provide in our changing climate.

The event began with dialogue between two soil scientists (Dr. Sarah Evans, KBS LTER site

Co-Director, and Dr. Elise Phillips, Oak Ridge National Laboratory) and two farmers (Margaret Morgan-Hubbard and Benny Erez, ECO City Farms), exploring the questions:

- *When you imagine what goes on in the soil, what do you see? What do you sense?*
- *What do you wish you could make more visible about soil, and to whom?*

The *Future Fields* artists then turned the conversation into movement, animating scientific processes, plant behavior, and human responses.

Using this framing, participants were sent into breakout rooms to continue exploring soil health and climate change using creative forms of expression. Each room returned with something to share with the larger group:

1. A movement phrase paired with soil imagery.
2. A visual artwork created live by artist JaQuanne LeRoy (Figure 1).
3. The poem above by Erin Roberts, which wove together the responses of all involved.

Figure 1. Collage by artist JaQuanne LeRoy created during *Research Reimagined: Moving with Microbes* online event.

These expressions were informed by storytelling and sensory reflection. Alongside scientists presenting on the impacts of climate change on soil health and the potential for increased carbon sequestration in soil, participants were invited to share their stories and connections to the land. These lived experiences grounded the scientific conversation, enriching abstract data with history and values. The creative process allowed participants to connect in ways that purely scientific or technical conversations might not have enabled. Participating farmers reported finding meaning in being positioned as co-equal to the scientists, upholding a core value of the MFT to value all the knowledge in a gathered group.

The *Research Reimagined* event took place during the pandemic, when we were unable to gather at partner farm sites. Being forced into virtual space allowed us to gather diverse cultural and geographic communities before we could meet in person. This period of virtual gathering deepened our connections, as we navigated the complexities of collective embodied practice across distances while still honoring place and community.

The *Future Fields* creative team later made an in-person visit to KBS, guided by faculty, students and science outreach staff (Figure 2). We moved through labs and the experimental crop plots of the LTER's exploration of the short and long-term environmental impact of agriculture practices. Since the 1980s, data has been collected on these plots and made available publicly [Robertson & Hamilton, 2015]. By looking at soil health parameters across a range of time and land management practices, scientists can track change in more granular ways.

In partnership with farmers, KBS is now developing research questions and studies directly related to changes that farmers are experiencing, like soil depletion, extreme storms, and unpredictable precipitation regimes [Guo et al., 2025]. KBS is also moving beyond the ineffective information deficit model to understand the barriers farmers face enacting more climate-friendly soil practices like cover crops and till reduction [Irvine et al., 2023] By rooting the research in place, the people most affected can see themselves reflected in the findings.

This long-term exchange of community-building practices across science and dancemaking illuminates the key transdisciplinary learning and shared experience that is part of the GATHER aspect of an MFT. This phase of *Future Fields* established the partnership's foundation, helped shape the trajectory of MFT inquiry, and uncovered unique questions, relationships, and opportunities from the community connected with a farm site. Our partnership with KBS highlights the creative research and development work that happens prior to an onsite MFT, how this preparatory stage informs the direction and depth of the collaboration, and the power of embodying science in and beyond place.

3.2 ▪ *MOVING with Sankofa Community Farm (Philadelphia, PA)*

The collaboration between Dance Exchange and Sankofa Community Farm at Bartram's Garden illuminated the profound intersection of ancestral wisdom, land stewardship, and climate resilience. Co-founded by Chris Bolden-Newsome and Ty Holmberg, Sankofa Community Farm is a 3.5-acre farm located in Southwest Philadelphia at North America's oldest surviving botanic garden. It embodies the Akan principle of Sankofa — "go back and get it" — weaving together African Diasporic traditions with contemporary sustainable agriculture practices. The farm produces over 15,000 pounds of food annually while serving as a hub for intergenerational learning.

Sankofa Community Farm demonstrates low-tech, high-relationship approaches to climate adaptation: their commitment to completing full plant life cycles and collecting seeds for future seasons preserves genetic diversity and local adaptations that enable crops to withstand changing conditions.

The *Future Fields* residency at Sankofa, initiated by Dr. McCray, began with a profound shift in how the creative team approached the land itself. As Mr. Holmberg led the initial tour,

Figure 2. MFT at the KBS. A) Dance Exchange artist Christina Catanese explores long-term experimental plots at KBS. B) One of the experimental plots of the KBS's Main Cropping System Experiment [a prairie strip between two cornfields]. C) Moisture control structures in a drought experiment at the KBS LTER site. D) Dance Exchange artist Cassie Meador creates a movement record of the observations and conversations during a site visit to the KBS.

one of the farmers introduced the practice of entering the farm with an acknowledgment of its sacredness. This invitation fundamentally transformed the collaborative process — not as an imposed ritual, but an opening for each participant to reflect on what the sacredness of the land meant to them personally, grounded in their own cultural experiences and histories.

The Dance Exchange team integrated into the farm through direct engagement with the land. The artists spent time in the fields with their hands in the earth, pulling weeds and saving seeds alongside staff and volunteers, embodying the labor and care that sustains

the farm while supporting its daily operations, allowing for a fuller understanding of climate change's impacts on the farm [Badaki, 2020].

Attended by ~20 paid high school interns, alongside community elders, neighbors, and volunteers who work on the farm itself, the MOVING element of the MFT at Sankofa unfolded as a processional journey through five farm locations, each offering its own convergence of story, movement, and ecological wisdom. Climate resilience was woven throughout the tour not as abstract concept but lived practice (Figure 3).

Figure 3. MFT at Sankofa Community Farm. A) Moving Farm Tour artists engage in collaborative weeding alongside Sankofa staff. B) Dancers Clarence Brooks and Jonathan Van Arneman perform an intergenerational duet under tree shade. C) Dr. OreOluwa Badaki performs a solo combining dance and spoken word in the farm's orchard. D) Dr. Jamē McCray leads participatory choreographic prompts near the entrance to Sankofa.

Under the direction of Dr. OreOluwa Badaki, Sankofa youth volunteers wrote stories rooted in specific locations throughout the farm, creating a literary map of place-based narratives. Dr. McCray collaboratively led choreographic prompts and movement structures that translated these stories into embodied expression, while partnering artist Ronya-Lee Anderson offered her voice to accompany the movement with original *a cappella* melodies and songs.

An intergenerational duet between Clarence Brooks and Jonathan Van Arneman recalled

the intense pulling and wrenching to remove embedded weeds — referencing both the physical labor of land stewardship and the cultural work of uprooting systems that prevent communities from thriving. A large tree provided literal and symbolic shelter, offering respite from the climate extremes that increasingly challenge agricultural work.

Dr. Badaki performed a solo combining dance with spoken word, positioning her body as movement artist and soundtrack. Her performance embodied the "polyrhythms" and "fractal codes" referenced in her poetry, demonstrating how embodied knowledge carries forward ancestral technologies and future dreamings. The orchard setting, with its perennial crops and long-term thinking, provided a fitting backdrop for exploring how traditional ecological knowledge informs climate resilience.

With temperatures reaching 98°F, the timing of the tour highlighted the immediate impacts of climate change on farming communities. Northeast weather patterns in the U.S. are shifting toward rising summer temperatures alongside increased rainfall in shorter, more intense periods [Crimmins et al., 2023], changes that require both infrastructural adaptations and cultural resilience. The tour's movement between shaded and open areas, and its attention to finding refuge under trees and among crops, became a lived demonstration of how communities adapt to climate extremes while maintaining connection to land-based practices.

The farm's composting operation transforms organic waste into soil nutrients without relying on chemical fertilizers — a practice that reduces greenhouse gas emissions and builds soil carbon storage. As participants observed these systems, they witnessed how traditional agricultural knowledge offers sophisticated responses to contemporary climate challenges. The farmers' intentional choice to use minimal high-tech solutions reflects a deeper philosophy: that technology, while useful, can create disconnection from the land and diminish our ability to read its signals and respond to its needs.

Throughout the journey, audience members were invited to contribute and share their own observations as they moved between locations. These noticings were woven into the collectively built dance, ensuring that the performance remained responsive to the immediate experience of place, weather, and community.

The processional to the Schuylkill River became the tour's most profound moment of historical reckoning and future visioning. As participants gathered at the water's edge, youth poetry and song honored the enslaved ancestors who worked this land, the Indigenous peoples who used the river as transportation and trade route and stewarded the land before European colonization, and the current and future caretakers connected across time. The movement here embodied the core principle of Sankofa — going back to retrieve the knowledge of the past while creating and passing along wisdom to the future. Water, as historical pathway and contemporary climate concern, became a through-line connecting ancestral resilience to present-day adaptation strategies.

Through the MOVING process, the audience became co-creators rather than passive observers, embodying the participatory ethos central to Sankofa's farming philosophy and Dance Exchange's artistic practice.

3.3 ▪ *MAKING with ECO City Farms (Bladensburg, MD)*

The fullest expression of the MFT model to date came to life through the partnership between ECO City Farms, Dance Exchange, and the ASM. ECO City is an urban teaching and learning farm rooted in food justice, ecological restoration, and community health. More than a growing space, ECO City is a hub of environmental education, cultural resilience, and community-led change: a place where food, soil, and story intertwine.

Urban farms like ECO City have the potential to play a vital role in addressing climate change by reducing the carbon footprint of food systems, transforming waste into nutrient-rich compost, and reintroducing green space into densely developed areas. Run properly, they can help mitigate the urban heat island effect, foster community resilience, and offer hyper-local solutions to global environmental challenges — all while educating and supporting residents taking climate action in their own neighborhoods [Hawes et al., 2024].

Future Fields' collaboration with ECO City began with the *Research Reimagined* event (*described above*), followed by an in-person event in 2022. Audiences for the ECO City MFT included several groups:

1. Attendees of the 2022 ASM Microbe annual meeting held in Washington D.C., including researchers, instructors, and students, recruited through ASM marketing channels (website, social media, email, on-site signage).
2. Participants in Dance Exchange's annual Organizing with Artists for Change Climate Institute, an intergenerational program for adults working at the intersection of art and climate to deepen their contributions to the climate movement.
3. Youth and young adults attending a local Teen Adventure Camp, designed for participants with special needs; this program explores each participant's ecological footprint and climate change, while fostering connections with farms in their community.
4. Members of the ECO City Farm community — farmers, staff, and interns — who participated as guides and knowledge keepers, as well as active participants.

As individuals moved through the farm — past compost piles, into season-extending hoop houses, and around worm bins — they engaged directly with regenerative farming practices that contribute to climate change adaptation and mitigation. These regenerative systems demonstrated how farms can reduce emissions, enhance resilience, and sequester carbon.

Participants witnessed previously developed choreography staged in key areas of the farm and were also deeply involved in generating and performing movement collaboratively (Figure 4). Guided to notice and embody the interconnected stories and ecological systems of the farm, participants were led through this phase using Build-a-Phrase, a Dance Exchange tool that invites co-creation of choreography from everyday gestures, shared stories, and spontaneous movement. As scientists and farmers shared their research and lived experiences, often accompanied by evocative images and expressive shifts in gesture, the choreography became a living representation of transformation: microbes turn waste into fertile soil, communities cultivate sustainable food systems, and embodied knowledge drives climate action.

Movement was not just an activity but a form of inquiry, reflection, and

Figure 4. MFT at ECO City Farms. A) Moving Farm Tour guides and performers Ralph Glenmore and Corina Iona Dalzell engage in embodied storytelling among the rows of food grown at ECO City Farm. B) Inside the worm house, artist and Moving Farm Tour guide Ronya-Lee Anderson leads participants in creating movement inspired by their learning and experiences with composting operations at ECO City Farms. C) Toward the conclusion of the Moving Farm Tour, participants come together to review and embody the full movement sequence they collaboratively created.

relationship-building. In one moment of synthesis, Benny Erez, Director of Urban Agriculture and Compost Guru at ECO City, shared a powerful vision of the worm's labor — transforming waste into nourishment, science into story, and decay into life. He highlighted how effective waste decomposition through vermiculture diverts organic material from landfills (where it would release potent greenhouse gases like methane) and can enrich the soil and enhance carbon sequestration [Amante, 2024; Gill et al., 2023]. As he spoke, the full group was guided to observe the gestures and actions embedded in Mr. Erez's storytelling and the vermiculture operation itself. These movements were more source material, woven into the emerging choreography.

Kayla Agonoy, Deputy Director of the farm, then shared her hopes for the future of the land — hopes centered on cultivating a space where elders and youth come together in intergenerational community and stewardship. Her vision includes strengthening community resilience by reconnecting young people with agricultural knowledge passed down through generations and creating opportunities for elders to remain active contributors to the land's health and future.

As Ms. Agonoy spoke, her vision of resilience and reciprocity was heard and embodied in the gestures that animated her story. These movements, witnessed and gathered by the group, became part of the shared choreography. Participants reflected her movements,

physically echoing her story across rows of okra and peppers grown in compost created by worms at ECO City using food waste from local communities. As climate projections warn of shifting weather patterns and increasing stress on agricultural land, the importance of resilient, regenerative land use becomes clear [Gosnell et al., 2020]. Ms. Agonoy's stewardship embodies a vital adaptation strategy — nurturing soil health, biodiversity, and intergenerational community to sustain the land's productivity and the community's food security in an uncertain future.

These embodied exchanges became a kind of living language that spoke across disciplines and differences, connecting science to sensory experience, memory, and imagination. As ASM member Dr. Katharina Richard attested after participating: "The impact of having laboratory staff connect with and understand that they are not just cogs in the scientific machine executing their Principal Investigator's vision, cannot be overstated. They are all still their grandparents' grandchildren, who with love and care try to solve real world problems, honor each other's different upbringings, and strengthen our connections to the ecosystems, including farmlands, of which we are a part".

In closing, the group performed the full movement sequence, set to Roberts' poem. The performance culminated in a reflective circle, where each person was invited to speak from the perspective of the soil: *What does the soil want us to know?* The responses were diverse — scientific and spiritual, poetic and personal. Some recalled the histories held in the land; others gave voice to the soil's imagined sight, sound, and feeling. The circle passed around a small wooden bowl of ECO City compost as a literal and symbolic link between the movement, science, and community. In this circle, climate change was not a distant or abstract issue, but a living process shaped by soil systems, microbial life, and human action.

In the MAKING phase at ECO City, dancemaking became a method of synthesis — a way to hold complexity, express care, and imagine futures rooted in reciprocity. The science of soil health was not abstracted from the people or place but physically enacted, emotionally felt, and communally understood.

4 ▪ Conclusion

When science communication transcends the lab, when it moves from a transfer of knowledge to an embodied experience, when we feel science with our bodies, minds, and hearts — it becomes far more meaningful. Art used creatively in science communication invites us to see our world — and our relationship to it — as a living, evolving process. Art can't just be a tool for delivering science, but a way of engaging with the world in new ways.

Embodied practices play a critical role in fostering place-based and community-centered science. They connect science to the lived experiences of communities, especially those most affected by climate change. When positioned in the landscape, these practices create multi-sensory learning environments where knowledge is not only understood, but felt and remembered. They make space for cultural specificity and intergenerational wisdom, honoring the ways people already relate to land, food, and climate. They challenge extractive, disembodied approaches to science communication and replace them with relational, reciprocal practices — ones that are more inclusive, just, and capable of holding the complexity of the climate crisis. In this way, the body itself becomes the unexpected

place for science engagement. When we understand the body as having meaning in itself, as opposed to a container where meaning is stored, we can use it as a means to pose questions, connect with emotions, and understand theoretical concepts [Bentz, 2020].

The *Future Fields* MFTs draw on these embodied practices by merging arts-based learning, embodiment, and place-based education. Whether at a scientific field station, in an urban growing space, or on a regenerative farm, the MFTs foster a direct, sensory relationship with climate change and sustainability issues by bringing scientists, farmers, and artists together to engage with the land through creative processes.

This approach transforms the learning experience from one of passive receipt of information to active participation. It ensures that knowledge is not just transferred but experienced, deeply felt, and carried forward by all involved. Calling on Indigenous knowledge systems, it unearths multiple possibilities for a thriving future based on connection with the land [Simpson, 2014]. Shaped by the distinct voices, geographies, and priorities of the communities where it takes root, the MFT model invites people to walk alongside those who grow our food, to dance with the questions of our time, and to sow seeds of possibility for the world we want to build — a powerful vehicle for change. The practices of Gathering, Moving, and Making serve as adaptable frameworks — guiding principles that support each site in cultivating its own approach to collective inquiry, creative expression, and climate engagement.

Ultimately, science alone will not deliver the solutions we need for addressing climate change. Transformation requires shifts in cultural norms and the cultivation of cultural momentum — forces that shape collective behavior, influence values, and move ideas, emotions, and communities toward collective action. Embodied creative engagement helps generate these. It invites us to slow down, listen deeply, and move together toward a future that is more than sustainable.

Healing the climate crisis is the work of our lifetimes. It will take all of us [Johnson & Wilkinson, 2021]. Art allows us to do that work together, building the community needed to move forward with clarity and courage. When we engage in artistic processes with community and cross-disciplinary partners, we cultivate the relationships and insights needed to find our roles in healing the climate crisis. This is what makes science communication culturally relevant. It's not just about the message; it's about how we get there — together, in partnership.

5 ▪ An invitation

We now invite you to take part in your own embodied experience. Think about something you are working on. Is there a space (physical or mental) where this work happens? Take your body there, or if you can't, visit in your mind. Tune into all your senses — what do you see? Hear? Smell? Feel? Can you notice movement in the environment around you? In your body? Your breath? Try to identify one aspect of that place and ask: "What does it want me to know?"

Remember: the whole world moves, and so do you.

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About the authors

Geoffrey Hunt, Ph.D. is a program director with extensive experience creating mechanisms that bring together different communities to foster engagement and conversation around scientific topics. Geoff has worked for several international organizations, including the American Society for Biochemistry and Molecular Biology and the American Society for Microbiology, and he was the inaugural Director of LabX, a public engagement program at the National Academy of Sciences. Currently, Geoff is Director of Strategy and Partnerships

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Christina Catanese works across the disciplines of dance, education, environmental science, and arts administration to inspire curiosity, empathy, and connection through creative encounters with nature. She currently serves as the Education Specialist at the Annis Water Resources Institute at Grand Valley State University. In this capacity, she leads aquatic science education and outreach programs, including hands-on cruises on Lake Michigan and adjoining inland lakes. She has an MS in Applied Geosciences and a BA in Environmental Studies and Political Science from the University of Pennsylvania. Christina relishes using her interdisciplinary background to connect people with nature and water, especially by integrating art, science, and outdoor learning. Previously, she served as the Director of Environmental Art at the Schuylkill Center for Environmental Education in Philadelphia for seven years, where she oversaw all aspects of curating and implementing an environmental art exhibition program on the nature center's 340 acres and gallery spaces. Christina is also an artist and choreographer exploring the embodiment of ecological processes. She is a co-lead artist on Future Fields, a long-term performance and engagement project of Dance Exchange that explores climate change and agriculture. Other recent works have explored dam removal and restoration in the Grand River, the symbiosis of lichens, ginkgo trees, tree grafting as a metaphor for becoming a mother, and soil as the foundation of place. She has participated in artist residencies at the Santa Fe Art Institute (New Mexico), Signal Fire (Oregon and Arizona), Works on Water (Governor's Island, New York City), and SciArt Center (virtual).

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Jamē McCray is an ecologist, educator and choreographer synthesizing cross-disciplinary knowledge to drive innovation and advance environmental stewardship and sustainable development. She believes that collaborative art forms like dance provide an untapped source of creative solutions to complex environmental challenges. She welcomes individuals of all ages and walks of life to explore who we are, where we live, and what world we want to move toward. Dr. McCray is known for her engaging classroom lectures, mentoring research teams and sharing expertise with colleagues, educational institutions, research foundations, government agencies, and community-based organizations. She has experience working with diverse groups from small villages in Samoa during her time in the Peace Corps, to artists and scientists at the University of Georgia, to environmental education center staff. She currently serves as the Managing Director of the Alliance for Watershed Education, a part of the National Wildlife Federation. She earned a B.S. in Biology from the University of Maryland Baltimore County, an M.A. in Marine Policy from the University of Miami, and a Ph.D. from the University of Florida in Wildlife Ecology. Jamē has participated in artist residencies at Philadelphia's Schuylkill Center for Environmental Education, Tupelo Mississippi's Link Center, NYC's SciArt Center, and at the Oak Spring Garden Foundation. In 2021, she received the Established Professional Award in Choreography by the Delaware Division of the Arts. Jamē is a partnering artist with the Dance Exchange. She currently serves as board chair of the Superhero Clubhouse, an

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Cassie Meador is a choreographer, educator, climate activist, and Executive Artistic Director of Dance Exchange. She is the lead artist of Dance Exchange's Climate Initiative. Her work cultivates creative opportunities across generations, cultural experiences, and disciplines to energize, explore, and advance solutions for a life-giving future in the face of the climate crisis. Her community-centered performance projects have advanced the role of artmaking and creative engagement within the climate movement, including How To Lose a Mountain, which in 2012 took Meador on a 500-mile walk from Washington, DC, to a mountaintop removal mining site in West Virginia to trace the climate and community impacts of the energy that powered her home. Other performance works include Drift (2009); Language From the Land (2010); From the Desk of Rachel Carson (2014); New Hampshire Avenue: This Is a Place To... (2014); Bricks & Bones, co-created with Paloma McGregor (2015); Off-site/Insight: Stories from the Great Smoky Mountains (2017); and Remembering Water's Way (2018). Cassie has worked extensively with the Girl Scouts, the National Park Service, and the USDA Forest Service to foster environmental stewardship through arts-integrated and embodied learning—particularly through her Moving Field Guide program, which is now being integrated into Prince George's County Public Schools in Maryland. She has also collaborated with educational institutions such as Wesleyan University, Virginia Commonwealth University, and Michigan State University to support educators and students in embracing a cross-disciplinary approach to artmaking, education, and social change. Cassie is a certified Critical Response facilitator and leads an embodied approach to Climate Wayfinding as Director of Dance Exchange's Climate Institute. She participated in the inaugural in-person Climate Wayfinding cohort, a program of the All We Can Save project, at the Omega Institute in 2022. In 2011, she was selected as an artist representative of Initiatives of Change to attend the 17th Conference of the Parties (COP17) by the United Nations Framework Convention on Climate Change (UNFCCC) in Durban, South Africa. In 2017, she received the Montgomery County Emerging Leader Award for her work with Dance Exchange. Cassie lives in Silver Spring, Maryland with her family.

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