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RESEARCH ARTICLE

Humans in/of/are nature: Re-embedding reality in sustainability sciences

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Behind the facades of humanity's technological advances and urban lifestyles, there is in fact no real wall that separates us from the web of life. Biology, physics, Western social theory, and Indigenous scholarship all tell us that we are embedded in the natural world; to operate otherwise is a dangerous misconception and leads to the human-centered ecological crises we currently face. And yet many scientific communities, including those concerned with the environment and sustainability, continue to incorporate human-first, human-separate mental models into their disciplines. In this article, we use the method of Bohmian dialogue to explore the "imagined wall" of false separation and how it manifests in 4 distinct fields: entomology, soil science, food systems, and monetary policy. We ask: How would deconstructing the imagined wall function as the basis for interdisciplinary sustainability research? We lay out where the wall can appear, its consequences, academic and practical resistances, and how each field might move toward truer sustainability without this mental model. We offer suggestions for this process of unlearning and relearning, particularly to those scientists who may have begun to question human supremacy in ontology and epistemology but who have not actively applied such critical social theory to their own work.

Keywords: Embeddedness, Soil science, Entomology, Food systems, Ecological economics

Introduction

For all their attention to sustainability, environmental research fields—including agricultural science and economics—do not share a meaningful definition of the concept, especially regarding who and what is being sustained (White, 2013). While classic definitions of sustainability focus on the ability of human development to continue without harming the environment or future generations (Brundtland, 1990), some scholars take exception to the implicit and explicit dominance of humans in such conceptions (Brown, 2004; Bergmann, 2019). At the basis of this conceptual schism is the Western scientific mental model that erroneously sets humans apart from other forms of life, as if we were somehow outside or above nature rather than part of it (Haraway, 1988).

Human separation from nature *appears* to manifest throughout modern life. Most humans no longer grow their own food. The labor involved in keeping us alive, including the sourcing of all the materials of daily life, is largely invisible in the modern economy (Plumwood, 2003). The effects of how we use energy, water, and chemicals are often experienced in locations far from that use (Worthy, 2013). Privileged people who are alive today in higher income places and countries are given precedence over not only people from poorer neighborhoods and poorer countries—not only over all other forms of life impacted by warming climate, acidified oceans, polluted and depleted groundwater, and deforestation—but also over future humans, through the process of economic discounting that means current human needs are seen as more valuable than future ones (Brown, 1992). Sustainability is that much harder to achieve when unsustainability is often so obscured from the modern societies perpetrating it.

This obliviousness does not change reality, however. Regardless of our recognition, we are deeply connected, dependent upon, and impactful on the world within which we find ourselves. The packaged nature of our modern lives does not disembed our culture; it only creates an illusion of separation (Mitchell, 2018), a wall that we imagine to be there but is not (Plumwood, 2003). Humans are inextricably linked with all other living things and the ecological and geologic systems upon which we all depend. The "imagined wall" of separation and hierarchy inherently facilitates the exploitation of other forms of life and of other humans (Merchant, 1989; Mellor, 1997a; Plumwood, 2003).

This wall also pervades the methods and frameworks of much environmental research, thereby limiting its potential capacity to generate new ideas and findings that can

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contribute to deep, lasting, and effective sustainability. Environmental researchers can help perpetuate the wall through how they think about and study the subject matter of their fields, without recognizing or acknowledging that there are other much more enmeshed approaches. They can overlook diverse, already existing forms of resistance to the wall, whether through how soils, animals, plants, or subaltern humans behave, or through the work of fellow researchers who are questioning the wall.

The work of re-embedding reality in sustainability sciences, then, is to dismantle the imagined wall that is taken for granted in effectively every field of sustainability study within Western institutions. We believe the disregard of interconnectedness prevents true sustainability, "the possibility that human and other life will flourish on the planet forever" (Ehrenfeld and Hoffman, 2020, p. 7). Critical social theory from many fields tackles this cognitive disconnect, but the insights have not permeated the practice of sustainability sciences, and attempts to translate these insights into how scientists do their work are few and far between. As scientists who engage with these ideas, we will show how we have developed our understandings and consequently changed how we see our work, with the goal that it may facilitate this process for other sustainability scientists.

To illustrate possible transitions in scientific thought toward a more integrated approach to sustainability, we will demonstrate how tearing down the imagined walls that separate human beings from the constituents of living and nonliving systems can fuel environmental research across 4 areas of inquiry. This includes soil science, entomology and "pest" management, agriculture and food systems, and monetary policy.

Background: Theories of connection

Our framing of the imagined wall draws on a largely Western scientific understanding of "human" and "nature," a stream of thought formalized in ancient Greece, including by Plato, through subsequent Christian writings, and fortified by Descartes (Hall, 2011). The imagined wall is a foundational premise of colonial and capitalist society (Plumwood, 1993). The notion of separation helps to justify the exploitation of others and exists in a feedback loop of theory and action: Justifying (certain) human supremacy likely emerged in order to disregard respectful and reciprocal kinship relationships with other species and each other. Exploitation and domination allow for wide-scale destruction, including converting ecosystems into agriculture, clearing land to build houses, damming rivers to make electricity, burning fossil fuels to move around, and depleting freshwater resources (see e.g., Rockström et al., 2009). If sustainability can be seen as the long-term flourishing across different domains of life, the imagined wall makes it nearly impossible as it renders ecological harm as necessary or even inevitable.

Three core aspects of human existence, illustrated by scientific findings, contradict the notion of a wall between humans and the rest of nature (Brevik and Barbieri, 2019). The first aspect is evolution, which through a tangled and messy evolutionary tree connects all life to all beings, living and nonliving (Quammen, 2019). The second is human existence as a mosaic, each of us made up of billions of other beings and only partially individuated. For instance, human digestive tracts are replete with microbes who transform the food we eat into the matter of our being (Morton, 2010; Ursell et al., 2012). The third is those characteristics that humans often use to position ourselves as unique or superior to other life forms, such as culture, language, social organization, tool use, morality, and self-awareness. These characteristics are neither universal nor exclusively human, however (Hunt, 1996; Fox et al., 2017). For example, not all humans are able to use tools or language, yet many crows can use tools to obtain food.

Taken together, the fundamental error of the "imagined wall" is to assume that humans are unique in their subjective experience in an otherwise objective world (Haraway, 1988) and are therefore entitled to use other species and ecosystems, regardless of outcome. And, while the wall is pervasive in Western-inspired thinking, a separation between humans and the rest of nature is not justified by science itself.

In this article, the term "imagined wall" serves as a synthetic term for the rich diversity of social theory dedicated to the reality of human embeddedness in the natural world and to the mental constructs that either obfuscate or integrate our awareness of it.[1] As a group of environmental researchers, we authors have been variously influenced by such ideas as hyper-separation (Plumwood, 2003), alienation (Marx, 2007), domination (Merchant, 1989; Warren, 1990), and linked forms of oppression (Gaard and Gruen, 1993), in which Western mental models of hierarchy create the rationale for exploiting natural systems as well as other humans.

To unlearn these models, our work has incorporated complementary theories of embeddedness (Polanyi, 2001), immanence (Mellor, 1997a), nested systems (Meadows, 2008), transcorporeality (Alaimo, 2017), situatedness (Haraway, 1988), noticing (Tsing, 2015), kinship (Haraway, 1988; Kimmerer, 2013; Todd, 2017), right relationship (Brown and Garver, 2009; McGregor, 2009), hyperobjects (Morton, 2013), and Place-Thought (Watts, 2013). These are a few of many efforts to de-theorize human separation, focused on the connections between parts from the individual level up to the biosphere (cf. Worthy, 2013). They position humans as within social and natural systems, in which we participate and upon which we entirely depend. The work is a resistance to deeply rooted concepts of Cartesian reductionism and of the "rational actor" in a human economy: Fallacies of individualism that permeate much of Western thinking and allow humans to position themselves as outside, above, and

1. "Imagined wall" also nods to the iteration of our group thinking on this subject. One author, JA, wrote a paper on duality narratives in Western culture and economy, which LB read and passed on to KB. With JA, CBM, and LB, KB then attended a conference on ecological economics, which sparked the idea for an essay titled "There is No Magic Wall," co-authored with LB (Brevik and Barbieri, 2019), which then inspired this project. We have adjusted the terminology from "magic" to "imagined" for greater specificity regarding the human cognitive aspects.

entitled to the rest of life (Mellor, 1997a). Western science, especially ecology and systems-based fields, has made great strides toward a more relational understanding of the world, originally stemming from the works of Muir (1911), Leopold (1949), and Carson (1962) and continuing into the present. Yet this ongoing theoretical work—and the ongoing planetary ecological disaster—is evidence that there is much to be done before Western human thought and its attendant actions are fully reintegrated with natural cycles and connections.

Not all knowledge traditions prioritize humans in such ways that require an undoing. The work of Indigenous scholars, especially Todd (2016), TallBear (2014), Watts (2013), and Kimmerer (2013), has influenced our conceptions here. We are inspired by them while keeping in mind guidance from Liboiron (2021) and Simpson (2017) to avoid appropriating Indigenous ways of relating in order to improve Western ways of relating or overly relying on Indigenous knowledge systems as resources.

As scientists, we recognize the need to bound our inquiries and erect conceptual walls to concentrate our research. What is important is to remember that such walls are not real; they are conceptual tools. They are not inherent, natural, nor impermeable, and they do not supersede physical laws in our material worlds. Accordingly, they must be explicitly recognized as such, so their useful intellectual separations do not inform our embodied relationships. Boundaries allow us to focus; walls allow us to objectify and exploit.

Approach

While we see increasing discussion of the embeddedness of humans in nature from emerging interdisciplinary collaborations, there are often not complementary discussions of how to implement such an understanding in research. In our experience as interdisciplinary environmental scholars, the idea of human separability from nature is often implicit, even within fields expressly concerned with protecting nonhuman forms of life. This inspires the research question: How would deconstructing the imagined wall as the *basis* for interdisciplinary sustainability research operate in different disciplines?

What follows are explorations of deconstructing the imagined wall within 4 fields of sustainability sciences as examples of the work that can be done. The Methods section documents how our team began to analyze the imagined wall concept in our respective fields. The Case Studies section provides specific cases of how the imagined wall influences our respective fields and how deconstructing it would influence our approach to sustainability. We begin by exploring the microbial world within soil, how labeling beings as "pests" erases our communality, and how farming systems are places of both separation and mutuality before exploring how our approach to money embodies a human/other distinction.[2] The Discussion investigates how this approach has helped us develop a richer appreciation of the importance of critically examining the imagined wall and how other scholars could apply and build upon these efforts.

Methods

Theoretical standpoint, identities, and intentions

Interdisciplinary environmental scholars are strongly positioned to see the shortcomings of the imagined wall premise, as our work often draws upon complexity theory, ecology, political ecology, and other schools that explore the interconnectedness of life and challenge atomistic notions of existence.

We, the authors, came to this project from different disciplines and methodological training, but with similar distress over the rapidly declining health of our world. Most of us have a background in ecological economics, a field that recognizes that human economies are embedded in social and natural systems and are subject to those realities; and in ecofeminism and related fields, which are concerned with right relationship, in both human and more-than-human relationships. Our project—and its novelty to our team—is admittedly conditioned by both our inherited and consciously acquired perspectives and identities. We are uniformly of White colonist ancestry, trained at an academic institution in the rural northeastern United States, and both beneficiaries and products of elite educations steeped in traditions of positivism, neoliberal capitalism, and an atomizing and dominionistic cultural narrative about how human people relate to nature. In other words, we come from communities and philosophical worldviews in which there is a strong imagined wall.

However, we have also sought out and been exposed to ontological and epistemological orientations that challenge these culturally dominant conditioners. This article represents an unlearning and subsequent relearning process stemming from our own personal and professional commitments to confront the foundational issues of the Anthropocene. The article's primary use may be to scholars from similar educational ontologies and/or cultural identities, especially those interested in holistic sustainability who have not been trained in social theory. There is much unlearning to do in these circles.

From intradisciplinary reflection to interdisciplinary dialogue

This project emerged from conversations surrounding Brevik and Barbieri (2019) essay "There is No Magic Wall" in our team's interdisciplinary professional circles. Its argument is the one we lay out and apply here: That despite human actions, perceptions, and rhetoric, there is no hard boundary between us and the rest of nature. First, we independently mapped cracks in the imagined wall across the diverse empirical and theoretical literatures with which we work. Concurrently, conversations around the imagined wall and our respective concept-mapping efforts emerged among members of our team. Recognizing that we were spontaneously engaging in separate conversations with the potential to be collectively enriching,

2. Although this group has an emphasis on agricultural research, such a focus is not required for this inquiry; our other collaborators include scholars of wildlife management and musical theory.

a former collaborator initiated a formal working group (see Acknowledgments).

Our team's transition from independent concept-mapping to an interdisciplinary joint venture occurred organically and manifested elements of the intentional dialogue process described by physicist and philosopher David Bohm. Bohmian dialogue was first put forth as a strategy for uncovering the domain assumptions that limit human thought, and for exploring the possibilities that lie beyond the boundaries of those assumptions (Bohm et al., 1991). The approach has been used to encourage interdisciplinary (McCallin, 2004) and transdisciplinary (Francovich, 2015) thinking in contexts ranging from health care to education. It is especially pertinent here, offering an alternative to the atomism and dualism (Hobson, 1999) that underlie the imagined wall.

Using Bohmian dialogue to guide our interdisciplinary conversation around the imagined wall concept, our team initiated an iterative series of meetings structured around key elements of the Bohmian approach, as outlined in *Dialogue: A Proposal* (Bohm et al., 1991). Prioritizing Bohm's emphasis on avoiding superficial consensus, we gathered to discuss the potential alignments and divergences in our thinking around the wall in our own fields, with attention to: (a) suspending our individual goals and judgments; (b) ensuring the potential for sustained conversation that allowed evolution of thought; (c) minimizing the influence of preexisting social hierarchies in our group (e.g., seniority at our shared institution); and (d) maintaining the topical flexibility to follow unplanned avenues of discussion. Owing to our team's small size, to follow the final element of Bohmian dialogue commonly set forth—participation of a group ranging from 20 to 40 individuals—we presented a draft of this article in a keynote panel at a conference in mid-2021, which influenced the positionality reflections herein.

Over the course of iterative meetings, we discussed our respective understandings of the imagined wall as a theoretical lens, its consequence for our specific disciplines, and the interdisciplinary significance of dismantling it at the disciplinary level. In our first 2 meetings, we closely conformed to the unstructured essence of Bohmian dialogue. These sessions were dedicated to probing the overlaps and divergences of the imagined wall concept in each of our fields, and brainstorming alternatives for communicating the substance of our conversations with a wider audience. Our dialogues eventually centered around one question: What would it mean to apply the idea of *no* wall between humans and nature to actual scientific inquiry? After initial discussions and individual reflective writing, we discussed each other's ideas for our respective fields, redrafted, and provided iterative responses and feedback. Each round of dialogue helped push each of our ideas forward and challenged the ideas that we had come to individually. We have now been engaged in discourse, formally and informally, for 5 years.

One area we found difficult for attaining consensus (the goal of Bohmian dialogue) was whether humans truly are unique in Earth's ecosystems. As noted above, any supposedly distinguishing lines are blurred or erased under close scrutiny; we have almost no unique claims to individuation or even ability. There was a sense in the group that the hubris of uniqueness is part of the basis for exploitation and destruction. And yet, humans have created global ecosystem change, beyond any other species' reach. The entire premise of this exercise was to address those problems, that is, the "roots of crisis" for which human values are responsible (Bohm et al., 1991). We eventually agreed to a framing of humans as uniquely *situated* but not inherently more worthy.

Another area of uneasiness was in our position as White scientists seeking to learn from a diversity of theorists, both Indigenous and non-Indigenous. Debates are ongoing as to whether Western scholars should, or can, incorporate Indigenous worldviews and science into colonialist academic lineages. Some people think such knowledge systems are incommensurable and argue against appropriation; others contend that Indigenous scholarship deserves wider recognition for its critical insights. We have tried to strike a balance on both these questions, reflected in a "both–and" nuance throughout this article, while not reinforcing walls between complementary ideas.

To that end, while we have all engaged in theory and academic debate on the question of human embeddedness, our dialogues also uncovered the extent to which our interest and perceptions were deeply personal as well as professional. For some of us, this work is a way to demonstrate with theory and external evidence what we believe and have lived ourselves. We have variously encountered the oneness of life through art, fishing and hunting, physical activity, spiritual practice, and listening deeply (literally and figuratively) to our research subjects, human and nonhuman. Such reflections came up often as evidence or illustration of what we tried to communicate conceptually. In our efforts to dismantle conceptual walls and our respect for multiple ways of knowing, we wish to affirm these experiences as legitimate motivations for scholarly work.

Case studies

The following accounts reflect our current thinking on the imagined wall in our fields, as influenced by the Bohmian dialogue. Each subsection features one author addressing the following topics in their area of specialization: (1) how the wall manifests, (2) its scientific and practical consequences, (3) alternatives and resistances to imagined wall thinking, (4) how we might build upon such alternatives for more holistic and accurate sustainability research, and (5) insights that arose from the Bohmian method. The Discussion extends these findings broadly to sustainability studies.

Soil science—Lindsay Barbieri

Soils are fertile grounds for creating, propagating, and thus examining the imagined wall. Humans manipulate soils, and the flows of nutrients therein, to cultivate plant and animal beings for food, fiber, medicine, fuel, culture, aesthetics, and enjoyment. While humans are not one undifferentiated group and are also not unique among living beings in entering into these relations with soil, globally, humans have particularly large impacts on the

land. The sheer extent and weight of human alteration is immense, with humans manipulating soils on nearly 3 quarters of the Earth's ice-free surfaces (Ellis and Ramankutty, 2008) and with humans and their livestock far-out massing all other mammals (Bar-On et al., 2018). The intensity and magnitude of the effects of human alteration on soils are also substantial, with large perturbations of global nutrient cycles (Ayres et al., 1994) and rapid displacements and extinctions of nonhuman life (Pimm et al., 1995). Indeed, recent endeavors to quantify how much human–soil relationships are responsible for the disturbance of planetary processes have shown that human–soil interactions are critical contributors to anthropogenic planetary degradation (Kopittke et al., 2021). Whether intended or unintended, human–soil relationships have helped produce substantial imbalances of both nutrients and power (Shiva, 2015). This has contributed to many entwined problems from eutrophication to climate change to displacements and extinctions.

For me, the imagined wall looms most at 2 points:

First, the imagined wall is embedded in human conceptions of the soil itself. Soils are vast, biodiverse worlds, with extensive tangles of complex relations. Yet, through the lens of soil science as a scientific discipline, the dominant envisioning of soil (from predominantly Western, White, male perspectives) has historically been one of resource—a matrix which humans can add things into (e.g., fertilizer, seeds, labor, scientific probes, and instruments) and take things from (nourishment, precious metals, building materials, scientific insights, and cultural identity). "What soil is thought to be affects the ways in which we care for it, and vice versa" (Puig de la Bellacasa, 2015, p. 692), and if one sees soil as simply a balance sheet of inputs and outputs (Soil Science Division Staff, 2017), it becomes easy to justify the manipulation and extraction in service to humans.

Second, the imagined wall is embedded in the logics that shape human–soil relationships. While reciprocity and care are foundational in some human–soil practices, these relationships are also enmeshed within dominant social and economic systems. These growth-focused systems encourage human manipulation of soils to feed and serve humans in productivist-dominated, extractive ways that contribute to the disruptions and destruction of nutrients and life. Agricultural production alone (humans manipulating soils to feed humans) contributes substantially to the disruption and degradation of ecosystems (Foley et al., 2005; Campbell et al., 2017) and the destruction of soil itself (Bouma and McBratney, 2013). While soils provide nearly all of the calories that current humans consume, the imagined wall logic of "humans need to expand/intensify engagements with soil in order to grow more food because there are hungry people" allows powerful humans to obfuscate the questions of which humans are benefiting and who in the web of life is being harmed?

Originating from beliefs about the primacy of humans over the rest of nature, the imagined wall justifies the separation of humans from soils and the life therein and thus reinforces and allows for continued human domination and extraction while obscuring damages. Confronting the imagined wall both allows me to engage with a plurality of ideas from across disciplines, knowledges, and entities, and enables me to more critically consider these 2 points (conception and logic) from within the discipline of soil science—all while opening pathways to counter dominant and damaging human-centric conceptions and logics.

In dealing with the conceptualization of soils, much work is being done. Soil scientists are increasingly recognizing soils as endangered worlds where many different relationships flourish (Puig de la Bellacasa, 2015), with calls for "more responsible ways of thinking about and caring for the myriad conglomerates of living, decaying, and dead matter that basically make up the stuff of soil" (Granjou and Salazar, 2019). And certainly, countercurrents exist. This is reflected in increasing attention to soil health, the continued capacity of soil to function as a vital living ecosystem as a way to more holistically assess soils (Lehmann et al., 2020). This is also reflected in agroecological conceptions and practices, and even in the development of a combined "anthropology of microbes" at the intersection of anthropology and microbial ecology (Benezra et al., 2012). However, as a scientific discipline, soil science remains one of the least diverse scientific fields. Historically marginalized communities are often the people most affected by the negative impacts of human–soil relations (e.g., climate change, land degradation). These are also often the people that have more varied conceptions of what soil is and how human–soil relations can exist—and yet they are underrepresented in soil science, so their voices and perspectives do not shape the discourse of the discipline (Berhe and Ghezzehei, 2021). Further, as soils play a pivotal role in many entangled transdisciplinary ecosystem challenges, work conducted around soils may not always be carried out by those that would identify themselves as soil scientists (Weil, 2016). Expanding on the diversification of people and voices within soil science while also broadening and deepening the avenues for co-creation of soil knowledge while remaining epistemically humble are both critical pathways to allow for more holistic and vibrant conceptions of soil. Shifting and expanding conceptions of soil while simultaneously questioning/dismantling the imagined wall will allow space for more diverse, entangled human–soil relationships to exist and flourish.

In unraveling these damaging logics, 2 examples follow. First, the continued expansion and intensification of agriculture has not provided food security and nutrition for all humans (Krishna Bahadur et al., 2018). While agricultural assemblages—including soils and their biotic and abiotic communities—produce enough food for all humans, people and institutions make inequitable decisions about what food is grown and how it is distributed (Berners-Lee et al., 2018; Barbieri et al., 2019). Confronting the imagined wall makes me question actions "for the good of humans," and then allows me to focus on more nuanced questions of justice. If "for feeding humans" is not a justification for expanding or intensifying human-centric soil relationships, what does that mean for how we grow and distribute food and who is making those decisions and at what scale? Second, humans are increasingly recognizing soils for their ability to sequester carbon and

reduce greenhouse gas emissions (Smith et al., 2014; Minasny et al., 2017). Predominant policy directions exemplify differing views on how humans can best support climate change mitigation in soils, from technological solutions (e.g., introducing biological nitrogen inhibitors) to conservation agricultural practices (e.g., reducing tillage). These solutions tend to fall along the line of humans. Predominant policy directions exemplify differing views on how humans can best support climate change mitigation in soils, from technological solutions (e.g., introducing biological nitrogen inhibitors) to conservation agricultural practices (e.g., reducing tillage). These solutions tend to fall along the line of humans either taking active actions in mitigation, often piecemeal and with technological help (Crist and Kopnina, 2014) or cordoning off human access to allow other soil relationships to reestablish. However, regardless of where solutions fall along this spectrum, they are all human-derived and almost always center human needs (as defined by humans) above all else.

While it may not change human–soil interactions (humans may still make human-centric decisions), recognizing the imagined wall enables a deeper questioning of the underlying and pervasive human-centric visions, even—and particularly—within ostensibly eco-centric goals. Whether for growing food or sculpting land, interactions with soil are common practices for many humans. As everyday practices, these interactions can shape how we see the world and enact materiality (Papadopoulos, 2011). For this reason, it is critical to carefully consider soil relationships as spaces to imagine and enact sustainable and just world views (Puig de la Bellacasa, 2015; Roux-Rosier et al., 2018).

Entomology and "pest" management—Kristian Brevik

As within any ecosystem, the relationships between species in agroecosystems shape the lives of those species. These relationships both create the participants and are created by them through a dynamic and complex interweaving of ecological relations (such as who[3] eats whom, provides environment for whom, and pollinates whom) and evolutionary change (such as changes in genes and gene frequency, epigenetics, and phenotype). Agroecosystems are a web of reciprocal exchange. Walls are imagined in agricultural ecosystems between those beings whom humans want to be present (crops, domestic animals, soil, and farmers), and those who humans don't want to be present (plant-eating insects, called "pests," and plants who grow without human intention, called "weeds," rocks, etc.).

While agroecosystems displace or replace existing ecosystems, they also provide abundant food resources for some plant-eating arthropods. This is especially true in many current agroecosystems, where a single species of plant is densely cultivated over a wide area. Humans who grow food in this way grow abundance in the form of plant life (such as potatoes, corn, and vegetables) for themselves and others. Insect species who can take advantage of this abundance are able to increase their populations and expand their geographic ranges. These insects often come into conflict with humans over food resources. In these conflicts, humans have developed ways of thinking about insects, including classifying them as "pests"—a term which serves to justify actions taken to dominate and destroy those whose lives are "in our way." When a being is designated as a pest, they are *made killable*, in that their deaths do not call on us to respond—that is, they do not call on our responsibilities (Haraway, 2013, p. 80). This wall between "pests" and other species truncates the development of more considered relationships.

One simple way to begin breaking down walls between species is to acknowledge the significance of the words we use and emphasize that many of our relationships with other species are constructed and are thus changeable. Using "pest" in quotations is one way of intentionally calling out the imagined wall in entomology and insect management research. Moving beyond use of this term will help the field of entomology in 2 ways—one scientific and the other philosophical.

The scientific rationale for not using the word "pest" is that it hard-codes *subjective preferences* as something inherent to another living being, introducing unexamined bias into research. To say "pest" is to say something like, "they interfere with our activity, and we do not like them." But a "pest" in one context can be prized in another context, as we see with many agricultural plants. For example, many humans try to remove dandelions from lawns, where we call them "weeds," while others encourage their growth, both for human use (tea, greens, and fried flowers) and for the services they provide to many insect species, including bees. Using a word like "pest" normalizes control and domination of other species and avoids a more thoughtful and coherent assessment of our relations with other beings. It is also a potent shorthand which short-circuits attempts to articulate our knowledge—to say what we actually mean. As Beth Savage writes about the term "invasive,"

> *When we designate a species as invasive, we essentially set in motion a script . . . We assign certain qualities to these species (aggression, danger, and malevolence), we read into their success as a negative for the native wildlife and so the behaviours they enact through their very being alive, cement their invader status.* (Savage, 2020, p. 195)

A similar script accompanies the designation of a species as "pest," where we construct their identity through their very being alive and successful in the ecosystems humans have played a large role in creating. This designation attempts to exempt people from our responsibility in putting these dynamics in motion. The behaviors these species perform as "pests" are facilitated by humans—who else planted millions of acres with nothing growing but potatoes, which benefit potato beetles the same way they

3. Language is powerful, and this human author chooses to use pronouns for other beings which emphasis their animacy and personhood—thus, "who," rather than "that," and singular "they" rather than "it."

do humans? Before we can improve our relationships with the other beings within agroecosystems, we first need to acknowledge responsibility for our current ways of relating, while remaining reflective as these relationships develop. Instead of saying "this species is a pest," we can instead say, "in this town in Vermont, this species of insect relies on potatoes for food, and so has an antagonistic relationship with local farmers, who rely on exchanging potatoes at a local market for U.S. dollars in order to purchase food and health insurance."

Philosophically, it is imperative for those in the biological or natural sciences to critically assess the usage and normalization of certain terms, especially when their usage flows into discourse outside of academic journals and conferences. When terms are elevated and granted legitimacy within scientific discourse, they perpetuate the legitimacy of the ontological framework that allows for certain beings or individuals to *truly be* "invasive" or "pests" or "weeds," and justify beliefs and ways of being in relation with others, inside and outside the discipline. This is to ignore the ontological assumptions which undergird the usage of such terms.

To use a previous example, the use of the term "invasive" is predicated on a utopic Western conception of "nature" existing in a pure state without humans or human impacts and is used to justify vast numbers of violent acts against animals and plants—alongside human residents—in the name of conservation (Wallach et al., 2020), continuing a mode of engagement based on human domination or management. Classifications of beings as "pests" on the far side of the imagined wall can have violent political power, seen in Nazi Germany, during the Rwandan genocide, and in the United States during World War II, when the Japanese Army was portrayed as lice and mosquitos, complete with language surrounding infestation and extermination (Raffles, 2011). To deprive such language of power, it is not enough to simply contest that certain humans do not belong in such a category with rats and beetles, *we must deny that these categories are objective ways of classifying any living beings.* Ecologies do not conform to conceptions of a hierarchy with humans on top (and certain humans higher than others); they show us that we live within an interconnected mesh of relationships.

Within the fields of entomology and "pest" management, there is rarely any resistance to the use of the word "pest," or much consideration paid to the death of insects, or any ethical responsibilities humans may have toward these beings. My experience suggests that such consideration would be difficult at best, and that most researchers in the field or industrial farmers in their fields would ask, "What is the point of this? We still have to kill insects to grow food and make money." Most modern humans find themselves bound to extractive fossil-fuel-based agriculture to meet their nutritional and caloric needs, which does not allow for much flexibility when it comes to exploring nuanced relationships with "pest" insects. So how shall we move forward? Moving beyond walls requires acknowledging the difficult relationships we have built with other species and the uncertainty of the harm we cause them.

How might we begin moving beyond this illusion of separation from insects, while also remaining aware of the ways insects can cause harm to humans? I would like to offer this practice, something we can do every day to improve our relationships with insects. It's called "Meditation with Insects." Whenever you encounter an insect or other arthropod, pause and observe them. If they are a spider in your house, try to imagine why they are enjoying being there (given that spiders likely lived in that spot for many years before your house was built). If they just crawled up your leg, think about how they might be perceiving you. Are they drawn to your body heat? Your smell? You just happen to be there? How are they experiencing you as you are experiencing them? While they are spending time with you, think about what your responsibilities are to this being as someone with a common ancestor. If you are feeling an urge to kill them or swat them away, why? Can you remember who taught you to relate to insects that way? Even if this encounter results in death for them, what are your ethical responsibilities to them, a fellow being who is making an ecosystem with you?

Agriculture and food systems—Caitlin B. Morgan

It is common in environmental circles to hear that the establishment of agriculture around 10,000 years ago began shifting humans away from sustainable hunter-gatherer organization and paved the way for all other environmentally destructive human behaviors. It is easy to see how the creation of settled society, and the transformation of natural materials to support it, would allow certain human cultures to imagine themselves as separate from and dominant over the rest of nature. And yet agriculture is a contradictory case, where the imagined wall is both obviously erected and demonstrably false. Through farming, humans manipulate the life cycles of plants and other animals for our own ends of survival and pleasure. In some cases, the manipulation is an exploitation and degradation. In other cases, it could be considered care work or stewardship, as humans breed and carefully raise other animals and consider nutrients, soil-dwellers, and surrounding biodiversity among their many responsibilities. These are different discourses, one dominating, one more reciprocal. As in the preceding sections, the imagined wall particularly appears where the plurality and long-term health of these ecological relationships is ignored or treated only as an economic instrument.

Food systems, a relatively new field of study, is itself a resistance to thinking in terms of walls. It attempts to capture the full swath of social and biophysical aspects of food and considers the relationships between parts. As a transdiscipline, it attempts to eliminate disciplinary walls and merge different forms of knowledge (Wickson et al., 2006). That said, scholars in the field often do not explicitly position humans as fully embedded in the natural world, beyond acknowledging that we are all in natural systems: There is still a strong presence of human-first mentalities and short-term economic concerns taking

precedence over long-term ecological ones, as it is in all sectors of the human economy (Crist, 2018). For example, as corporate profits take precedence over maintaining topsoil (Marris, 2022); pollution is part and parcel of the pressured and ever-consolidating dairy sector (Grossman, 2014); people sell and plant pesticide-coated seeds that kill bees (Dengler, 2017); tillage has been historically acceptable practice for managing "weeds" while damaging soil nutrient content (Kornei, 2022); food comes wrapped in single-use plastic that ends up in the ocean, waterways, and human bodies (The Environmental Impact of Food Packaging, 2020); and so on. The issues related to these outcomes are often framed in terms of their impacts on human communities, rather than on ecological communities, too.

There are admittedly very different approaches to studying food systems. Some are focused on social justice within human relations, some on mitigating climate change impacts, and others on the re-regionalization of food to pursue environmental, economic, and social goals. Some are explicitly anti-capitalist (e.g., Holt-Giménez, 2017), while others maintain the same economic development goals of previous global agricultural work, updated with an understanding that food touches other parts of life besides the human economy (e.g., FAO et al., 2021). The wall appears at different places, and with different levels of emphasis, for each. While there are increasing discussions of trying to balance ecological goals with economic or nutritional ones, the human-first mentality makes it difficult to truly consider the plurality of what we want to sustain. Profits? Some human lives? All human life? All forms of life? Without a wall, we could balance conflicting goals more openly and effectively. With a wall, soil is just dirt, insects are "pests," and the immediate needs of the economic system hold sway, even when damaging long-term human interests.

Alternatives and resistances to the imagined wall appear throughout the wide food systems literature. Agroecology, for instance, strives for integrated agroecosystems that foster diversity of life and support human health, nutrition, and culture (Morgan and Trubek, 2020). Local agricultural movements, including literature on phenomena such as "civic agriculture," position food-related relationships in a more immediate geographic area, where people can interact with the species that nourish them (DeLind, 2002; Delind, 2006). Human eating here becomes an issue of citizenship, potentially not only human communities but of all human life. Part of this process is the iterative nature of standard-making. For example, organic agriculture originally emerged as a resistance to degradation of soil and the social desacralization of farming (Robbins, 2019) and later in the environmental movements of the 1960s and 1970s. It was eventually adopted, some would say co-opted, by industrial industry, which has sparked the creation of new certifications calls for more strict standards (Held, 2021).

New, on-the-ground projects in this vein promote culturally derived, landscape-specific food such as The Sioux Chef's (n.d.) work to make Indigenous gastronomy widely accessible or Soul Fire Farm's reclamation of Black agricultural roots, resistance to racism, and cultivation of community food sovereignty (Lennon et al., 2018). These are food decolonization efforts. The imagined wall is a colonial mentality of invasion, domination, and extraction (Mellor, 1997b), made possible by the mental distance of "othering." Decolonizing food systems (LaDuke, 2018) means undoing those frameworks and rebuilding the relationships literally from the ground up. Science can support them by providing new or reclaimed knowledge and by investigating the effects of such projects on communities of life.

Undertaking the Bohmian process helped me clarify the blurry line of wall/no wall thinking in food systems work. The progression of scientific thought is never monolithic, it is iterative, messy, and self-contradictory. I realized that truly representing the reality of human embeddedness requires constant vigilance, lest the entrenched assumptions creep back into our well-intentioned but imperfect additions to the canon. And yet even at our most aware, it is not always possible to apply such a framing. Many scholars rely on funding from institutions that are deeply committed to the imagined wall. Many, especially those whose fields do not engage with social theory, are not able to publish alternative ideas in journals steeped in imagined wall mentalities. There are structures that keep such destabilizing, if generative, questioning at bay.

I have also realized there are issues that need to be theoretically addressed, both scientifically and perhaps culturally, before agriculture and food systems are fully inclusive of all life. Specifically, the issue of agriculture as "managed death"—that raising plants and animals is about choosing the time and manner of their death for practical ends—seems to be a wall in Western conceptions, but it is not an objective separation between us and other species. Even as we raise species for our own ends, there can also be deep connection to those beings. We carefully nurture baby plants. Even in more exploitive, industrial systems, humans actively care for the animals who produce their food (Overstreet, 2018).

Death is thus a rich and complicated ground for understanding the nuances of the imagined wall in agriculture. It is not killing itself that erects the imagined wall: All animals rely on others' lives to survive. The wall appears, instead, when we disregard the *relationship* of eater and eaten. Some humans recognize this connection explicitly. As the poet Gary Snyder puts it,

> *Innumerable little seeds are sacrifices to the food chain. A parsnip in the ground is a marvel of living chemistry, making sugars and flavors from earth, air, and water. And if we do eat meat, it is the life, the bounce, the swish, of a great alert being with keen ears and lovely eyes, with foursquare feet and a huge beating heart that we eat, let us not deceive ourselves.* (Snyder, 1990, p. 184)

I have begun to wonder if we can begin to understand this kind of death as kinship, the comingling of ourselves with other selves, as we eat others and feed others within

us. How differently might our food systems be arranged with this relationality at the forefront of human minds? Farms, eaters, and eaten: We are all in physical discourse with each other and the rest of nature. Such an understanding could serve not only our symbolic connection with the world but also our material relations within it.

Monetary policy—Joe Ament

The imagined wall also shows up in the systems of money that actualize and formalize the relationships in agriculture and land use described above. Money is at once a mechanism for creating the imagined wall and an embodiment of the imagined wall itself. Just as the manner in which we use money, discussed below, places an imagined wall between humans and the rest of nature, our use of money is also one of the critical tools for maintaining the imagined wall in the previous examples. This gives the imagined wall of the monetary system special significance in maintaining the imagined wall in the rest of science. This hegemony gets in the way of deep interrogation of the wall, something that came through in the Bohmian process.

The history of money is complex and differs across space and time. Yet money has always been, whether in the form of commodities or systems of credit and debt represented by those commodities, a social claim on physical resources (Brown and Garver, 2009). When exchanging a dollar bill for an apple, for example, we utilize a human social convention to exchange natural goods between individual humans. That exchange takes place wholly on one side of the imagined wall, the object of exchange (the apple) rendered inert and homogenized.

Money's early history can be traced to payments made for grievances committed against the social fabric such as murder, theft, or adultery (Théret, 1999). Over thousands of years these social debts codified into accounting ledgers of owing and being owed (Henry, 2004; Graeber, 2014) and evolved to take the form of coins, bills, and bank balances we see today. Money's history is thus a deeply social institution of relationships between and among individuals and society.

In the global transition to modern market economies, money evolved from this social relation (Ingham, 1996) used for exchanging and accounting for commodities to a commodity itself (Polanyi, 1971). This evolution was necessary to allow for the commodification of land and labor that capitalist economies require (Polanyi, 1971). This process alienated society from money's deeply social foundations and worked to disembed social relations (Giddens, 1991, p. 26) from the interconnected relations of the "rest of nature." The commodification of modern money yielded "distanciated transaction[s]" (Giddens, 1991) in which the money and the produce for which it is exchanged transact across a vast social space where the social relation between users and recipients of money has objectified through money's commodity form.

The greatest consequences of this commodified modern money exist in the machinations of monetary policy. As money became commodified, interest became the price for which it was exchanged. Monetary policy involves manipulating the rate at which central banks lend money into the economy in order to stabilize investment, employment, and inflation (Arestis and Sawyer, 2008). These in turn directly influence the extraction of natural resources for human consumption. When inflation is high, for example, consumption diminishes and extraction slows. The opposite is true when unemployment is low: Consumption and extraction increase. Accordingly, while all research in monetary and fiscal policy is ultimately about physical goods, the disembedded and alienated nature of modern money means the goods themselves are objectified as units in a stimulus bill, GDP calculation, employment report, or inflation measure. In short, interest rate considerations dominate the physical world in ways that the imagined wall maintains and disguises from our view.

As a macroeconomist, I have spent many years exploring the modern monetary system and its relationship to the natural world. I had always assumed that a more detailed understanding of the current system would inform a transition toward a more sustainable one. What I learned through the Bohmian process, however, was how disciplinary jargon could cordon off my field of research from other scholars doing similar work in different fields and potentially undermine collaboration or cause missed opportunities. Speaking in plain language helped me see how inflation is more than spending power, it is about how that spending power affects life beyond our wall.

Entering the process without goals was critical to my development in the process. I admit that I began the Bohmian method planning to educate my colleagues on how the monetary system embodies an imagined wall, and to learn how their respective fields embody walls. I did not realize or expect the extent to which the wall in my field of research enables the walls in all the other fields of research, and vice versa. For example, the commodification of land and agriculture each work to embed the commodification of money in a feedback loop that fails to recognize the inherent value of the land and food being commodified. For other practitioners, it would be useful to recognize how the imagined wall in one's own field enables, and is enabled by, walls in other fields.

One interaction in the process particularly stands out. While I was discussing where the wall exists in money, one coauthor (KB) said, "whales don't use money." While it was meant as an off-hand comment, it has stuck with me. No matter the rules and regulations surrounding money or our use of fiscal policy for environmental spending, our monetary system is employed only by humans, and is therefore itself a wall. Writing this, I grapple with how a wall-less monetary system could exist when the rest of life does not use money. This question has shaped my research and teaching. This conversation is purely a function of the Bohmian process allowing conversation to evolve loosely and flexibly, and importantly, for my coauthor to feel comfortable enough to make the statement.

I have also begun to think more critically about current approaches to reaching beyond the wall in monetary policy. Central banks around the world are beginning to

recognize the role of climate change and biodiversity loss in monetary policy (Chenet et al., 2019). But only in the context of the risk of assets and how an unstable climate or loss of species may render securities insolvent. Some banks are also considering climate risk in corporate debt purchases (Campiglio, 2016). While these are promising movements, they are still far from a wall-less monetary system and much of the work in the field tends to focus on such action.

There are, however, prominent examples of scholars who are pushing against traditional monetary thought to incorporate "the rest of nature" into humanity's understanding of money. Mellor (2015) has argued from an ecofeminist political ecology perspective for money as a sufficiency provisioning tool, I (Ament, 2020) have argued for a money rooted in an ontology of socio-ecological embeddedness, the think tank Positive Money (Barmes and Livingstone, 2021) has challenged central banks' sustainability action, and the Capital Institute (Fullerton, 2011) has practiced regenerative banking. Each of these examples aims to minimize the distance (Giddens, 1991) between and among individuals and the natural resources for which money is used by decommodifying and resocializing money's nature.

Dismantling the imagined wall for monetary economics means engaging with the field's own sacred cows with humility and flexibility. This includes the field's conception of money and its use of monetary metrics. Conceiving of money as a social relation directly contrasts with mainstream economic theory in which money is simply a neutral tool used for exchanging good (Schumpeter, 1954; Mankiw, 2008). Needless to say, if conceiving of money as a social relation is foreign, dismantling an imaginary wall to conceive of money as a relationship with, not only humans, but nature itself, is a challenge all-together unique. Similarly, while inflation and interest rates, for example, are basic building blocks of macroeconomic analysis, these metrics have different meanings and impacts in other fields. Inflation is about stability, growth, and credit generation in macroeconomics, but about purchasing power, inequality, and power in sociology (Ingham, 2004). Should a transdisciplinary exploration undermine the current contemporary approach to such metrics, so long as the quest to move beyond the imagined wall is furthered, it should be welcomed.

Perhaps most importantly, the field must engage humbly about money with the nonacademic world, in a quasi-Bohmian process. Avoiding jargon, listening to experiences, and entering into dialogues outside of the academic world without goals or hubris will allow for the inclusion of diverse perspectives as the field continues to engage with the imagined wall. Such engagement is required to embed humanity's use of money with the "natural world" from which we are not separate.

Discussion

In this article, we have used the framing of imagined wall to push our ontological disposition past where our disciplines normally engage (see **Table 1**). This is just a beginning. A deep unlearning, over time, will shape our scientific inquiries in ways at which we have only been able to gesture here. We encourage other researchers, especially those concerned with sustainability, to ask themselves the questions we have considered above. Where in your field does the imagined wall show up? Where is it demonstrably arbitrary or false? How would your work change if this concept disappeared? Even if you are unable to fully dismantle the imagined wall in your work, noting where the wall does exist should yield more inclusive research questions.

Additionally, it is important to note where the imagined wall *does not* appear in your work. Where does your field already reflect the interconnectedness of all life? As scientists, we may move back and forth between separational and relational frameworks. Indeed, such fluidity is necessary when generating knowledge about, for example, agroecosystems on the one hand and specific crops on the other. Identifying and building on our existing capacities for relational thinking will help move us forward, perhaps more quickly than just noting where we are entrenched and deficient.

While examining our fields in the Bohmian process resulted in different insights for each of us, some common themes emerged between cases:

- To challenge the imagined wall is to deal with the dichotomy of humans being just one species of many and yet also the species with greatest global impact. We must confront the responsibilities for our actions without allowing our position of power to reinforce imagined wall hierarchies.
- The impacts of operating as if there were an imagined wall are cocreated with other species and matter. We interact with soils, "pests," farmed plants and animals, and all the domains of life over which money exacts a claim. Many of these situations are driven by humans, but they are not fully controllable; acting on one part of the system without being able to contain impacts on the whole system underlies the network of ecological damage we now see.
- Even in the most well-intentioned fields, where sustainability is a key concern, it is easy and almost inevitable to import the atomistic and dominating assumptions of the imagined wall into our work. Unrooting such assumptions will take a long and concerted effort. Each of our fields, however, shows imperfect resistances: stepping stones along the path.
- *Who* is doing the science matters. Some groups of humans feel the impacts of the imagined walls much more keenly in their communities. Deconstructing walls relies on all groups taking part in building our shared knowledge.
- Language reflects and reinforces our conceptions. Thinking of earth systems as "resources" is distancing and obscuring; it allows domination and conceptually erases relationship. We need to transition to thinking about relations and responsibility to all life, rather than resources for short-term wants.

Table 1. Summary of insights from each case

	How the Wall Manifests in This Field	Consequences for Discipline and Practice	Resistances and Alternatives	Bohmian Insights
Soil science	Division and supremacy of (some) humans leading to soil being conceived of as an extractable and exploitable resource	Destruction of soil Continued justification of human primacy and domination Damaging shifts in nutrient cycles (e.g., climate change, eutrophication)	Holistic conceptions of soil, for example, soil health Systemic approaches, for example, agroecology, microbial anthropology	Expand soil conceptualization and soil "work" including more diverse perspectives and voices Unravel damaging logics
Entomology	Distancing from other species objectified and othered as "pests" Primacy of human food needs over other species	Attempted eradication of "pests" Use of widely harmful chemicals in agroecosystems "Pest" as a classification for any being	Meditations with insects	Need for acknowledgment of the more difficult relationships we have with other species and accounting for kinship
Food systems	Division of humans from agroecosystems (cognitive and spatial) Objectification and exploitation of "resources"	Depletion, pollution, and abuse Difficulty in full accounting of impacts	Systemic approaches, for example, agroecology Place-based cultural food revivals	Death as site of kinship Variations in strength/location of the wall in food systems science
Monetary theory	Separation between subjects and objects of exchange Human-centered economic policy Objectification of exchange process	Hyper-separation Distanced transactions Overextraction	Socio-ecological approaches to money Regenerative monetary systems and practices	Integrated nature and positive feedback loop between money and other fields in maintenance of wall Leverage points for resistance of wall

To operationalize breaking down the imagined wall, it is important to think about our respective scientific fields in terms of what would be necessary to know or enact to achieve true sustainability. Would different assumptions about the place of humans in nature lead to different proposals for sustainable transitions and different outcomes of transition policies? We believe so. Some scholars have already approached such questions by distinguishing the legal rights of nature from true ecological justice (Garver, 2020).

Along those lines, we speculate that our own fields could transform over time from "more inclusive" to potentially "wall-less" ways of building knowledge. In soil science, the disappearance of the imagined wall could allow us to account for equity between humans and the species that live within the soil. In entomology, we could learn from, rather than antagonize, insects and transition away from pesticides. Agriculture generally might be approached as a long-term collaboration between humans and the species that nourish us, and vice versa. And monetary policy might broaden economic stability to include ecosystem resilience and structural stability.

Examining where the imagined wall currently exists in our own research allows us to specifically consider who (both human and nonhuman) benefits and is harmed by a given decision. Such decentering of humans in sustainability research opens up the possibility of justice for other parts of nature (Mies and Shiva, 1993, p. 223) by unravelling the entwined logics of domination that rely on alienation to exploit others (Plumwood, 1993, pp. 48–54).

It is important to understand how interdisciplinary science itself benefits and suffers from imagined wall thinking. How does imagined wall thinking allow us to form conceptual mental models within disciplines that generate knowledge itself? When does imagined wall thinking allow us to understand the workings of the ecosystem, without using that knowledge to justify domination? Perhaps methodological and epistemological walls are useful in the scientific endeavor so long as ontological walls are broken and traversed. It was beyond the scope of this project to consider how deconstructing the imagined wall might influence research methodologies, but future work should consider this question of extending ontological revisions to the methodological.

There is, we believe, some solace in understanding the role that the imagined wall plays in destructive human activity. For if destruction begins in the mind, so must peacefulness. There is no universal law that claims humans must dominate ecosystems for their gain at the expense of living and nonliving beings. While perhaps

difficult to envision from our current vantage point of domination, transitioning to a peaceful and equitable existence with our Earth-kin is likely easier than the opposite, for it involves letting go rather than fighting.

As our world experiences accelerating climate change, soil loss, ocean acidification, and biodiversity loss, we are relearning how truly connected we are to the living and nonliving beings of this planet. And in the context of this change, the sciences are being forced to reckon with their positionality. Environmental scholars can no longer discuss nature as if we are not in it, can no longer study nature as if we are not of it, and can no longer objectify nature as if we are not it. Sustainability science must move beyond its best intentions to a place that challenges our conceptual frameworks and mental models.

Conclusion

What became clear through this collaboration is the deep need to grapple with what it means for humans to "manage" social and ecological systems. While imagined wall thinking indeed has led to dramatic impacts upon the earth's systems, human impacts are not always a result of wall thinking. Humans, as beings in, of, and part of nature, have always had (Abrams, 2020) and will always have an impact on the places they inhabit, just as nonhuman beings do. The question thus becomes how to reorient ourselves conceptually *within* nature in order to make decisions from a place of oneness. As Brown (2017) writes, "I often feel I am trapped inside someone else's imagination, and I must engage my own imagination in order to break free" (p. 18). The fate of our world relies on a collective breaking free, to a shared imagination of true belonging.

Data accessibility statement

No data are available for this article.

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Competing interests

There are no competing interests related to this work.

Author contributions

Contributed to conception and design: CBM, KB, LB, JA.
Contributed to acquisition of data: CBM, KB, LB, JA.
Contributed to analysis and interpretation of data: CBM, JA, KB, LB.
Drafted and/or revised the article: CBM, JA, KB, LB.

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