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From place to emplacement: the scalar politics of sustainability

Elizabeth S. Barron [a,b], Laura Hartman [c] and Frederik Hagemann[d]

[a]Department of Geography, Norwegian University of Science and Technology, Trondheim, Norway; [b]Sustainability Institute for Regional Transformations, University of Wisconsin Oshkosh, Oshkosh, WI, USA; [c]Environmental Studies, Roanoke College, Salem, VA, USA; [d]Department of Landscape Architecture, Planning and Management, Swedish University of Agricultural Sciences, Sweden

ABSTRACT

Sustainability has emerged as a central concept for discussing the current state of the human-environment system and planning for its future. To delve into the depths of sustainability means to talk about ecology, economy, and equity as fundamentally interconnected. However, each continues to be colonised by normative epistemologies of ecological sciences, neoclassical economics, and development, suggesting that with enough science and development, a more equitable sustainability is achievable. In our analysis, place emerges as an alternative epistemology through which to analyze sustainability. Place exists at multiple spatial and temporal scales, understood through direct observation of boundaries, processes and patterns, phenomenologically through individual experience, and as a complex hybrid: always emerging through interactions among individuals and institutions. Despite the ubiquity of place in the socio-ecological literature, the complexity of place in relation to sustainability is under-theorised, and in as much as sustainability happens or does not happen in real places rather than in policies and models, a place-based sustainability framework is necessary to move forward. To address this gap, we developed the emplacement framework, consisting of four domains: displacement, misplacement, replacement, and emplacement. Each domain is dynamic, constructing place as praxis, and reframing sustainability as a site of collective inquiry and choices. Our goal is to facilitate the active and on-going practices of place-based research and engagement among scholars, activists, and other community members by providing a structure for transdisciplinary dialogue and the application of transdisciplinary research to enable better decision-making.

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1. Introduction

In this paper we invoke place as the central element to understand social, cultural, and environmental justice perspectives on sustainability. We propose a new framework to integrate these perspectives, which we call the emplacement framework. Inspired by three empirical examples, the emplacement framework aims to facilitate the active and on-going practices of place-based research and engagement among scholars, activists, and other community members. It does this by providing a structure for transdisciplinary dialogue and for the application of transdisciplinary research to sustainability decision-making.

CONTACT Elizabeth S. Barron elizabeth.barron@ntnu.no, Department of Geography, NTNU, 7491 Trondheim, Norway

Sustainability nearly always entails interdisciplinarity, from large international assessments (Millennium Ecosystem Assessment 2005; Vadrot et al. 2018) to landmark publications (Kates et al. 2001; Carpenter et al. 2009; Díaz et al. 2015). Different boundary objects are often invoked for sustainability research (Abson et al. 2014; Enqvist et al. 2018), but it is less common to consider sustainability itself as a field of negotiation amongst diverse stakeholders and disciplines. Central to our argument is the idea that sustainability is and should be contested among diverse disciplines and actors: it should be considered a "conceptual tool that enables collaboration and dialogue" (Enqvist et al. 2018, 17) rather than a framework for ongoing development.

Sustainability science research, often framed as transitions, transformations, pathways or adaptation, grew out of the United Nations 2030 Agenda for Sustainable Development and the sustainable development goals (SDGs) meant to "transform our world" (Blythe et al. 2018). The SDGs are issue-based: poverty, hunger, and education are issues that are unevenly experienced globally, and highly complex products of economy, society and the environment. The SDGs are laudable policy goals meant to address real and significant imbalances between developed and developing countries and global challenges. However, when sustainability is primarily associated with sustainable development and international agenda setting, the focus remains on assessing challenges at the global scale. For example, recent research shows that income inequality between high-income and low-income countries is decreasing. However, income disparity within many countries is increasing. Even while global structures and institutions are developing more sustainably, it seems that at smaller scales the issue is more complicated because of specific social, economic and ecological factors (The Future in Now Report 2019).

As Ratner (2004) points out, a fundamental flaw with the SDGs is that they emphasise the transformation of societal structures and institutions with technocratic solutions. Thus, embedded in the SDGs, a unified framework of sustainability is tied to development agendas and issue-based policies but less able to account for the particularities of individual places, the people and organisms that inhabit them, and they ways in which they interact with other places. Bureaucratic and technocratic solutions focus on how to overcome technical challenges and moral problems, but not on the underlying imbalances in power, varied and influential worldviews, and historical patterns that have led to uneven development (Ratner 2004).

Detached from development discourse, sustainability becomes a more fluid concept. On the one hand, sustainability amounts to a simple prudential dictum: "do not undermine [the conditions for] survival" (Jenkins 2013, 134). Many can agree upon and describe this idea. And yet, in a contemporary context of human devastation of life systems this "minimal norm forces reflection on the goals of economy, the value of non-human life, the role of humanity within earth, and what we hope for the future" (Jenkins 2013, 134). That is to say, the simple idea of sustainability raises questions such as: what do we mean by survival – comfortable lives? How comfortable is appropriate? How far do we stretch our powers to keep humans alive and at what cost to the biota around us? What sorts of lives do future humans deserve and what conditions will be required for this to happen? Rather than simply a matter of sustaining growth without depleting a system's generativity, truly answering these questions means having deep conversations about the meaning and purpose of life itself, and this varies widely across places and cultures.

Several models for engaging sustainability across difference have emerged, each with illuminating strengths and weaknesses (Cornelissen et al. 2001; Ostrom 2009; Agyeman 2008; Chapin et al. 2009; Farley and Smith 2014; Kates et al. 2001). Sustainability science claims to incorporate many of these, and to be "the intellectual umbrella for addressing human-environment problems and practice arising from those research communities closely aligned with global climate and environment change" (Turner 2010, 570). However, sustainability science emphasises research on the ecological and (market) economic dimensions of sustainability while "black boxing" critical analysis of social concerns. Alternatively, a growing literature argues for the need to prioritise social justice issues (Agyeman 2008; Agyeman 2013; Boström 2012; Godfrey and Torres 2016) and cultural differences in sustainability concerns (Lövbrand et al. 2015; Escobar 2006; Brand and Vadrot 2013), but similarly

struggles to engage with meaningful ecological analysis. We center our discussion on place specifically because it is outside of this language of sustainability. Place does not prioritise ecological, economic, or social justice concerns, and therefore creates an opening to see and do sustainability differently.

Our argument is primarily theoretical and is based on the reframing of two key ideas: first, of place as a concept, rather than a location. Second, of sustainability being a place-based discourse, rather than a framework for development. Through this reframing we understand sustainability as a conceptual dialogue, a material and discursive "site" of constructive negotiations with material implications. Place is a core concept in geography, and a complete review of how this concept is used is beyond the scope of this article. Rather, we invoke a few key theoretical aspects of place that relate directly to sustainability discourse and focus on their practical application.

The paper proceeds as follows: in the literature review we detail our conceptual engagement with place, and review the salient literature on place and sustainability. We then present the theoretical foundations for the emplacement framework, premised on the weaving together of ideas from the critical and interpretive social sciences. We present the framework and its four domains (displacement, misplacement, replacement, and emplacement), and then three case studies which exemplify its use. In the final sections we build on the place-based environmental consciousness demonstrated in the case studies, and show that the emplacement framework holds potentiality and openings for political-environmental change and novel forms of sustainability focused engagement.

2. Literature review

2.1. The concept of place

Places have physical and social structure. Biophysical systems including hydrology, soils, climate, biodiversity and biotic community structure are the foundations typically used to differentiate environmental places and understand their meaning and importance in the global environment. Places are also social: the history of a place, including settlement, land use, migration and development tell the human story of how places come into being and change over time, connecting place to human-lived time scales. Political economy, culture, and community are rooted in and co-constitutive of these dimensions of place. Place exists at multiple spatial and temporal scales, understood through direct observation of processes and patterns, phenomenologically through individual experience, and as a complex hybrid: always emerging through interactions among individuals and institutions (Manson 2008).

The complexity and semantic openness of "place" as compared to abstract "space" motivates our concept of "emplacement". Casey (1996) theorises that place (in the abstract) functions as a concrete universal with differing instantiations (particular places are distinct); for Casey, place has no life beyond its instantiations. Place is grounding: Casey (1996) states "to live is to live locally, and to know is first of all to know the places one is in" (18). But place is also generative, since living bodies are constituted by, as well as constitutive of places. Places, according to Casey, dynamically "gather" entities and physical, social and cultural content, holding or containing dissimilar elements together. Casey states of place: "Its power consists in gathering the lives and things, each with its own space and time, into one arena of common engagement" (26). This common engagement of differential elements echoes the need for sustainability to facilitate genuine dialogical encounter across difference. Despite its containing function, place remains dynamic and semantically open, a fruitful paradox of containment and liberation. In other words, it is well suited to an interdisciplinary challenge like sustainability.

Massey's well-known "A Global Sense of Place" (1991) broadens Casey's understanding of place-based processes to include a politics of place. Massey distinguishes between reactionary and progressive sense of place (Table 1). Creswell (2014) writes that for Massey, a reactionary sense of place is marked by three interconnected ways of thinking: (1) there is a close connection between

place and a singular form of identity; (2) there is a desire to show how the place is authentically rooted in (a singular) history; and (3) there is a need for a clear sense of boundaries separating it from outsiders and the outside world. This approach to place may have several negative effects including exclusionary beliefs about identity (who does and does not belong in a place), a focus on a singular history of a place rather than the complexity of its past, present, and future, and selective entrenching of boundaries in harmful ways. Massey suggests that an alternative theorisation of place, as progressive, is consistent with a more fluid and open understanding of identity less likely to lead to prejudice and isolationism. Massey theorises a progressive sense of place this way: (1) place as site of multiple identities and histories; (2) place as process; (3) place as unique and at the same time defined by its interactions with other places/entities; place as defined by the outside. In our emplacement framework, we use Massey's progressive sense of place to delineate the fluidity, hybridity, and relationality possible for a more progressive understanding of sustainability.

Finally, in addition to Casey and Massey, we draw from Gibson-Graham's approach to place for its productive use of difference and potentiality. Gibson-Graham (2016) provides a language for political and ethical negotiations in and of places by applying the idea, borrowed from queer theory, of "reading for difference". Reading for difference complements Massey's theorisation of place as progressive. It means looking past what is "normal" and "everywhere" to see what is otherwise hidden or invisible, but importantly, may also be ubiquitous. For example, there is a longstanding perception in many parts of the world that housework is women's work, but using queer theory to analyze household work Cameron (1996/97) showed that domestic labour is a social activity where gender and work are co-constituted. In other words, many heterosexual couples negotiate housework on their own terms in the privacy of their own homes, and while it is often consistent with gendered norms, it is not required to be so from the outset as mainstream discourse would lead us to believe.

Complementary with Casey's work, reading sustainability for difference uncovers how each place has its own distinctive features, inherently different from normative categories, *and* always holds possibilities of becoming something different. Informal, community-based practices of sustainability may become starting points for larger transformations if they are recognised and shared. Gibson-Graham (2008) understands place not only as a specific locality, "but the aspect of potentiality" (663), not something with a clear identity but as a space for identification. In other words, the concept of place enables space for ongoing and emergent ethical negotiations, manifest as political processes enacted through open dialogue and shared practice. Thus, the distinct configuration of a place is never fully integrated in any broader system of meaning, but as an ongoing site and event it holds infinite possibilities, and is an opening for political and economic transformation.

2.2. Sustainability and place

A more fluid approach to place is useful because it facilitates an unmooring of an otherwise somewhat reactionary or static concept. An equally important part of our argument is that sustainability happens in real places, discussed in the literature through work on local sustainability and place-based governance.

Place attachment is often invoked as a generalised way to talk about how people are connected to places, and has been conceptualised extensively across scales and disciplines. Place attachment is

Table 1. Summary of Massey's reactionary and progressive sense of place.

Reactionary sense of place	Progressive sense of place
1. Close connection between place and one form of identity	1. Place is a site of multiple identities and histories
2. Place is authentic and rooted in a (singular) history	2. Place as process
3. Places have clear boundaries	3. Place is unique because of its interactions with other places, not its isolation from them. i.e. places are defined as much by the outside as the inside

often confused with or used interchangeably with closely related concepts like sense of place, place identity, and place dependence (Di Masso et al. 2019). In most of these cases, place is a fixed concept and it is peoples' connections that vary and are of interest. Place attachment and sustainability have been invoked together to make a case for why people care about a place (Masterson et al. 2017), however this does not account for place being highly interconnected with other places.

What does it mean to practice sustainability in a place when place is a process? In their work on place attachment and mobility Di Masso et al. (2019) are clearly influenced by Massey's progressive sense of place, and suggest that "[the mobilities turn] asks us to rethink the ontology of place and how spatial reconfigurations arising from mobility practices contribute to reshaping people's lived experience of being 'located' in the world" (126). Di Masso et al. (2019) suggest as societies become more mobile, place attachment may become more about self-determined active involvement on behalf of the place for a variety of reasons, where being historically connected to the particular place is only one of the reasons. Their analysis suggests that practicing place-based sustainability at the individual level may be as much about attachments people have to many places, whether they are from that place, have lived there, travelled there, or may simply care about it for many different reasons. Place attachment itself becomes a political process.

Place attachment at a different social scale manifests as organisational place-based governance where local identities make up local organisations and institutions. George and Reed (2017) introduce a framework for place-based governance and sustainability premised on organisations' needs to meet three imperatives: comprehensive understanding, community empowerment, and community-based outcomes. They determine that collaborative leadership, strong networks, and a shared agenda are required for sustainability initiatives to succeed. Like Di Masso et al. (2019), George and Reed (2017) highlight the importance of connection, active engagement, and flexibility to act and react individually and collectively, presenting dynamic engagement with the practices of sustainability.

If we understand place attachment as a complex system (Di Masso et al. 2019), and unsustainability as resulting at least in part from complex political disputes that stem from a troubled relationship to place (Hillman 2006), what we require is a framework to engage with the complexity inherent in our need to be emplaced. For many this includes our desires for the long-term sustainability of both planet and places. Ratner (2004) critiques sustainability agendas focused on consensus because he believes they over-simplify for expediency. Rather, he suggests sustainability is not a solution but a "dialogue of values, in which technical and ethical consensus are desirable but not adequate means of reaching collective decisions in complex disputes" (62). The message is clear: we must embrace complexity and get comfortable with negotiation. The emplacement framework, which we explicate below, is meant to facilitate that transition.

3. The emplacement framework

The emplacement framework developed in interdisciplinary discussions between scholars from the natural sciences, social sciences, and humanities. In these discussions, the framework became a bridge concept, a type of *lingua franca*, that could allow multidimensional problems to be addressed from multiple perspectives without getting bogged down in ideas or incomplete translations. The emplacement framework creatively and helpfully synthesises ideas connected to place and sustainability, described above. Its terms, due to their rhyming cadence as well as their conceptual depth, prove useful for generation and organisation of knowledge. Studies have shown that learners, from novices to experts, find more success and facility with concepts that are structurally organised in memorable ways; the emplacement framework has this quality, which recommends it for use in the classroom and in working with stakeholders, as well as for researchers (Ambrose 2010).

The emplacement framework employs a progressive re-visioning of the relationality of ecology, economy, and community to reframe sustainability discourses around place, rather than solely on

justice. This is not meant to discard justice, but to highlight that justice connected to movement in and through the environment can be discussed and understood differently using concepts of place. In this section we trace the framework's development, explain the underlying ethical motivations and domains, and describe the ways the domains relate to one another.

The emplacement framework was initially introduced in Van Auken et al. (2016). The authors used the framework's assembled sub-concepts (which we now call domains), displacement, misplacement, replacement, and emplacement, to think through issues of social inclusion, social capital, environmental justice, and ecosystem management (see below section 4.1).

The emplacement framework is intended to allow researchers and others to locate, make visible, position, and understand sustainability in place and make it actionable. In other words, we suggest that greater clarity about the interdependency of the environmental, social, and economic aspects of sustainability is achieved by situating it in relation to place. This enhanced clarity allows agents to put sustainability goals into action in a dialogical way. The framework has one overarching goal: *to facilitate the active and on-going practices of research and engagement among scholars, activists, and other community members, which recognises sustainable places as sites of socio-ecological complexity, uniqueness and also of iterative change*.

Ratner (2004) suggests that sustainable development can be based on ethical consensus. Following Ratner, we conceptualise the emplacement framework as resting on four ethical motivations.

(1) *Definitions of sustainability, economy, and community are fluid, and various interpretations are meaningful.* This sense of fluidity gives structure to interdisciplinary dialogue by reminding scholars of the need to discuss and develop a shared language of key concepts. Disciplines may stake out their own definitions for various terms, but with the understanding that such definitions are subjective: others may take a different approach (Gibson-Graham 2002).
(2) *Nature and society do not exist independently of each other; one cannot be understood without the other. This means our human communities are actually inclusive of humans and all other living things.* This is true both empirically (vast webs of interconnections are proven through many natural science and social science methods) and normatively (these connections should be honoured and valued; strengthening them leads to desirable outcomes such as greater care from humans for non-human nature) (Puig de la Bellacasa 2010).
(3) *We understand economy as the creation of value through exchange among community members.* We assume that humans and non-human nature have intrinsic value, but that our pursuits and activities are subject to critique based on their effects on the well-being of other community members. Consistent with the call of Lövbrand et al. (2015), our ethical engagement with the concept of sustainability supports economic transformation and the creation of new institutions to value non-human nature (Chan et al. 2016; Bryan et al. 2011; Barron 2018). Finally, economies must have emergent qualities to respond to shocks and disturbances in ways that the existing dominant market economy is not capable of, natural disasters or social unrest for example. These emergent qualities come from community (Gibson-Graham 2006).
(4) *Sustainable communities and economies are grounded in place. Places are sites of ongoing (biophysical and social) change, requiring ongoing adaptation and transformation.* The ability of a place to stay a place in the face of change is the basis for resilience theory. But resilience can be amorphous and reactionary; it can support undesirable outcomes (Redman 2014; Weichselgartner and Kelman 2015). In the emplacement framework we are particularly interested in the power of place-based communities and economies to intentionally build sustainable futures, and thus make choices about what aspects of their community and economies they want to maintain, protect, adapt, or transform. Our priority is the fostering and support of place-based connections in the face of change.

Based on these conditions, the four domains introduce a new vocabulary of place: *displacement, misplacement, replacement,* and *emplacement*. The domains are not intended to be exclusive or fixed,

but to provide a structure for engagement: to support inclusion of multiple data types, methods, and stakeholders required for research on the interdependent domains of sustainability. As such, they introduce a level of structure and fixity that exists alongside the fluidity and openness of sustainability as a concept. We find this acceptable for two reasons: (1) place is theorised in a similarly fixed *and* open way (see above), and (2) there is a lot of scholarship on sustainability, and useful for sustainability, that is structural, data driven, and empirical, which deserves space in this framework. The domains are further defined below.

Displacement is removal, rupture, and disturbance. In the literature displacement is most often used to refer to human disturbance and unwanted migration. Lems (2016) suggests that a more nuanced view of displacement is desirable, one attentive to people's lived experiences and the "everydayness of being-in-place" (315). Informed by our ethical motivations, we extend the notion of displacement as disturbance and forced movement to native non-human species, place-based cultural practices, and livelihoods.

Misplacement describes things that are out of place, examining the context through which places have come into states of uneasy being – long-term refugee communities, invasive species, cash crops that support countries but not communities. These may be maladaptations, conditions, complexes and institutions that are functioning unsustainably, and need attention.

Replacement addresses change, objects and actors that have come into a place to help it adapt (perhaps back) to a more resilient state. Replacement is the hopeful work of restoration and resilience, while questioning to what end and for whom certain conditions are replaced (since undesirable regimes and systems can also be very resilient). Through processes of replacement, we construct a position on what kinds of changes we would like to see, to consider the question: return to what? (Weichselgartner and Kelman 2015).

Emplacement is both a scientific and a political project. It shares an affinity with the concept of transformations from the sustainability literature, in that it similarly "implies a pervasive and radical reorganisation of the social-ecological system … aimed at specific system changes", (Redman 2014, 37). However, it is distinct in that it is place-based and intentionally aware of "emergent and unruly political alignments", (54). As a domain, it has space for social innovations and increasing self-awareness of the force humanity exerts on the planet (Stirling 2015). Through a politics of place, we may remake our subjectivity by asking "how do we become subjects who can desire and create emplaced sustainability?" What humans, plants, animals and fungi do we choose to live in community with? What forms of society, economy and culture support our communities and allow us aspects of "modern society" to which we have become accustomed? *Emplacing* lives, things, or processes refuses strict distinctions in universal categories and requires the reconstruction of the unaccounted for. Emplacement is the least concrete of the domains, because it is emergent and open.

The emplacement framework is visualised as a unified whole using the emplacement prism (Figure 1). Any project or participant can be located in the space inside the prism, in relation to the domains and sustainability. Even hovering on the surface of one of the sides of the prism is spatially related to three domains. Thus, the prism avoids some of the visualisation problems of the three pillars model and related Venn diagrams, where so much of the available space of each subject area is in isolation. The purpose of the prism is to maintain the focus on the inter-relation of the domains, so that it becomes clear to scholars from across academia, activists, practitioners, and others that their work does not exist in isolation, and in fact may be aligned with the work of others they did not suspect. In relation to sustainability, the central orb shows us that our work, as dialogue, discourse, practice and process is not directly tied to any one domain nor can it be explained through a singular approach.

In the next section we further elucidate the emplacement framework by applying it to three case studies that highlight the framework's usefulness.

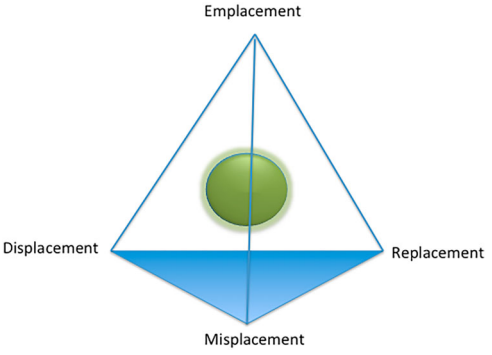

Figure 1. The emplacement framework, depicted here as a three-dimensional prism, is constructed through the relationship of four domains: displacement, misplacement, replacement and emplacement. Sustainability rests in the middle as an unobtainable sphere held "in place" by the sides of the prism.

4. Case study: using the framework

In this section we present three case studies as examples of the movement of human and biotic communities, how those communities change and adapt with places over time, and the implications for sustainability. The first example is one in which the emplacement framework was used to better understand the growing connection between migrants and their new place. In the second we have applied the framework to existing literature to explore complex sustainability issues in a multi-dimensional format. The third is a project which was designed using the emplacement framework, to understand how people connect to places through the practices of environmental stewardship. These case studies have been selected to demonstrate that the framework can be applied at different points in a research project, or even to existing literature, to draw out the role of place in sustainability discourses and practices.

4.1. Case study 1: strengthening relationships between people and place: Hmong in the Fox River Watershed, WI, USA (Van Auken et al. 2016)

Displacement and misplacement. The people now known as Hmong have experienced two significant displacements: the first in the early 1800s when they were pushed out of their original homelands in southern China, and into what are parts of modern-day Laos, Vietnam, Cambodia and Thailand. Many decades later, thousands of Hmong fought alongside the United States in the Vietnam war, and when the U.S. pulled out in 1975 from Laos, many Hmong people were forced to surrender or flee. They were displaced from their homes again, seeking asylum in neighbouring countries and thousands were relocated to the United States as war refugees. Many were settled in the Fox River watershed of northeast Wisconsin, and subsequent family-based migration has resulted in Wisconsin having the third largest Hmong population in the United States, and one which continues to grow rapidly.

Both periods of displacement led to "states of uneasy being" for many in the Hmong community. The crossing of the Mekong River, as part of escape from Laos, resulted in a generation of Hmong with deep fears of rivers, an especially troubling change for a people with spiritual traditions related to water. Later migration to the U.S. resulted in a concern that many had lost their cultural connection to the land. Cultural exclusion and prejudice in their new place have at times resulted in generational distrust of Americans.

Replacement and emplacement. Fifty years into resettlement, many Hmong have connected to their new places, and reconnected to their cultural heritage through fishing and farming (replacement). They have experienced cultural changes affected by place regarding gender identity, ecological knowledge and conscience (emplacement). The intensive agricultural practices of the Hmong

have had a noticeable impact on the Wisconsin landscape, and fishing in local rivers is a way people stay connected and socialise (Hmong, unlike most others in the area, tend to fish in large groups standing close together). At the same time, educational opportunities and socialisation in broader American society have helped empower Hmong youth, especially women, and resulted in Hmong community members who are merging formal ecological knowledge with ethnoecological understanding and evolving social-ecological consciousness.

The iterative, emplaced relationship between Hmong people and Wisconsin landscape is summarised by the authors:

> In the last several decades, Hmong people have become part of the fabric of the FRW [Fox River Watershed], while places within it have played an active role in shaping Hmong life in this area … the Hmong people have in some ways produced a reconstructed cultural landscape … at the same time the landscape of the FRW has in some ways reconstructed their culture, helping perpetuate and reinvigorate Hmong traditional practices and introduce new activities and relationships. (Van Auken et al. 2016, p. 5)

The landscape itself has played an important role in the cultural reproduction of Hmong culture in a new place, facilitating cultural transmission of ecological knowledge and practices, social, cultural and economic relationships based on and bound up with new species, new climate, and new human communities. Using the emplacement framework, the study focused on the relationship between people and place, expressed through changing spatial, economic, and nature relationships, which facilitated new perspectives on regional resource management.

4.2. Case study 2: Marshall Islands

Much work has already been done on the topic of Marshall Islanders' history of colonisation and current struggles with rising seas associated with climate change. Rich as the existing literature is, it would be significantly strengthened if we were to apply the emplacement framework to the topic.

Displacement and misplacement. The U.S. conducted 67 nuclear tests on parts of the Marshall Islands in the 1940s and 1950s, with devastating effects on human and ecosystem health. All residents of the Marshall Islands experienced health and ecological effects from the nuclear fallout, but the nuclear testing literally *displaced* residents of Bikini atoll – they were moved off their land to make way for the weapons testing. Bikinians residing in the other parts of the Marshall Islands report feeling *misplaced* – homesick for Bikini and unable to return (Johnson 1997). U.S. government testing has shown that Bikini's radiation levels may be safe for occupancy but not for eating locally produced food or drinking local water (International Atomic Energy Agency 1988). Returning, though it would satisfy the depth of cultural homesickness endured by generations of Bikinians, would be *misplacement*, not *replacement*.

Replacement and emplacement: Traditional foods were *displaced* as residents learned to prefer the diets of colonisers, rejecting breadfruit for rice. The small amount of subsistence farming that did occur in pre-colonial times was quickly replaced with cash crop farming as the islands transitioned to a money-based economy, leaving behind their lifestyles as place-based "ecosystem people" and becoming globalised "resource omnivores" (Nixon 2011, 22). About 90 percent of all Marshallese food is now imported (Ahlgren, Yamada, and Wong 2014). Dietary changes have led to health changes, including an epidemic of non-communicable diseases such as diabetes and cancer (Ahlgren, Yamada, and Wong 2014; McSherry 2015). But efforts at changing this – bringing back or *replacing* some traditional agriculture practices – are taking shape. The Diabetes Wellness Centre has a popular urban garden program with some food being grown hydroponically and others being grown in locally produced coconut husks; WUTMI (Women United Together Marshall Islands) has a women's gardening project; a farmer's market has been developing in the capital city of Majuro; and the College of the Marshall Islands is developing an agricultural school (McSherry 2015). Nearly all of these projects encourage gardening and food choices that may build on, but are significantly different from, the traditional pre-colonial diet. McSherry acknowledges that certain

imported foodstuffs such as rice and canned meat have acquired cultural significance and are unlikely to be eliminated entirely. The future of food sovereignty in the Marshall Islands is more like *emplacement* than *replacement* given its hybrid quality, creating space for multiple manifestations from spam to hydroponic lettuce to arrowroot. Measures to rekindle traditional foodways may be replacement, but increased use of hydroponics are something new, a way to be self-sufficient and grounded but not historical, and thus fit more clearly as an example of *emplacement*, a new path forward into a life that unites people and place.

Climate Change: The emplacement framework is useful for analysis of Marshallese responses to climate change. With rising seas, residents of the Marshall Islands are already losing graveyards and other features of their island homes whose permanence was once unquestioned (Jetnil-Kijiner 2017, 66). Many other coral atoll nations, in similar circumstances, are investigating evacuation options. Tuvalu, Kiribati, and the Maldives have all looked into the possibility of purchasing another homeland or applying for asylum in another country, such as Australia or New Zealand (Rudiak-Gould 2013, 150). The Marshallese government, by contrast, firmly refused to consider relocation for many years, and even language of adaptation to risen seas was eschewed in favour of mitigation discourse (Rudiak-Gould 2013, 150). Now, however, leaders are considering ways to build the islands higher, as a way to weather the rising tides (Letman 2018). The discourse in the Marshall Islands favours staying. Jetnil-Kijiner writes "But most importantly you tell them / we don't want to leave / we've never wanted to leave / and that we / are nothing / without our islands" (2017:66-67). Executive director of the Marshall Islands Conservation Society agrees: "We're not going. We're going to stay here until it's unlivable" (Rudiak-Gould 2013, 149).

The Marshallese have seen entire islands disappear with the nuclear tests; they know their own islands could disappear with climate change. But they have also seen what happens when communities abandon their islands at the urging of a foreign government that does not understand their needs or culture. Marshall Islanders know the threat of climate change is real but are choosing neither *displacement* nor *misplacement*: they are choosing their own type of *emplacement*, which involves renewing cultural ties, revitalising local agriculture, and investing in technologies of self-sufficiency such as solar panels (Radio New Zealand 2018).

4.3. Case study 3: the native landscaping movement in Wisconsin

Hartman (2020) designed a research project inspired by the emplacement framework, to understand how people connect to places through the practices of native landscaping. Through interviews with members of the Fox Valley (WI) Area chapter of the Wild Ones organisation, it became clear that many practitioners of native landscaping are responding to an "ecological imaginary" that features normative tropes which echo those of the emplacement framework (Foster and Sandberg 2004). Members who were interviewed consistently reported dismay at the degree to which human influence on the land had *displaced* native plants, native insects, and native birds. The lawns and ornamentals planted in their wake were seen, by this group, as horribly *misplaced* – ill-suited to the soils, invasive, harmful, and inhospitable to the insects and birds that also call the area home (Hartman 2020). In response, Wild Ones members sought to *replace* the ecosystems that had been lost. In this part of Wisconsin, this frequently meant planting prairie, though other Wild Ones chapters in other parts of the country might emphasise forests or wetlands more than prairie. Some Wild Ones members who were interviewed traced their ancestry back to early pioneers who had destroyed the prairie in order to grow crops; in a fascinating turn of events, those ancestors' descendants dedicated considerable time and effort to putting prairie back. This sounds like *replacement* – but arguably, in addition to *replacing* a lost ecosystem, these members of the Wild Ones are seeking a kind of *emplacement*. Beyond simply planting prairie grasses, they plant themselves – their sense of place and identity and legacy – into the landscape.

Several members discussed the native areas they'd planted in emotional terms, cherishing the places and their wild inhabitants as "a community" or "friends", and seeing these areas as "sacred"

or "a part of me" (Hartman 2020). This is interesting in light of the fact that every member of the interviewed group, and indeed nearly every member of the group as a whole, traces ancestry to somewhere else: these individuals' heritage nearly all descends from European transplants to North America. For a group so interested in the "native" qualities of plants, they seemed surprisingly silent on the topic of "native" people. This may grow from a historic human/nature split in Western traditions of thought (Hartman 2020). However, it also reflects the ways Wild Ones members were becoming *emplaced*. In Kimmerer's words, this is "more than ecological restoration; it is the restoration of a relationship between plants and people. … We are dreaming of a time when the land might give thanks for the people" (Kimmerer 2013, 263). Though Kimmerer has native Potawatomi ancestry herself, she leaves open the possibility that people of non-native ancestry might find a way to interact well enough with the land that they might become, if not truly "native", at least "naturalised" – or, we might add, *emplaced* (Kimmerer 2013, 214).

The case studies represent three distinct ways to use the emplacement framework. Van Auken et al. (2016) used it to analyze existing interview data and theorise the relationship between sociocultural change and resource management. The Marshall Islands case shows the value of the emplacement framework in understanding the complexity of a significant sustainability crisis. The native landscapers of Wisconsin show the generativity of the emplacement framework in its ability to inspire new research. In all three cases, what sustainability means, who it is for, and how it is at the same time ecological, economic, and social, come out through a place-based narrative. It is more than place attachment: more than justifying livelihoods or ecological integrity, or identity. Emplacement as process makes space for a new sustainability narrative.

5. Discussion

The emplacement framework is a gathering framework for diverse research and knowledge, facilitating clarity of thought, organisation of concepts, and productive dialogue through use of the domains. The domains are designed to appeal to multiple expertise inside and outside academia, so scholars, activists and decision-makers can address their interests and concerns within the context of displacement, misplacement, replacement and emplacement. These are intentionally functional and accessible ideas that work together in a complementary way. The domains of the emplacement framework also draw on existing scholarly literature. For example, Hillman's work on "situated justice" (2006) tells a story of ecological injustice, which is also a story of the ill effects of *displacement*. Lems (2016) suggests displacement has become a trope in anthropology, and calls on anthropologists to pay more attention to being-in-place and what we would call *emplacement*:

> Halima's arrival story draws attention to the complex interplay between emplacement and displacement as lived and felt in people's everyday lives … More importantly, it forces us to look into the inescapable *presence* of places and into the ways they continue to shape us existentially – even in the face of violent disruption and displacement. (Lems 2016, 317)

Lems's attention to everyday practices and place is consistent with the emplacement framework and its focus on humans and their movement through space and time. The emplacement framework challenges work like Lems's and Hillman's to engage explicitly with non-human agents and agency. It invokes sustainability through a language of place rather than languages of systems, transformations, adaptations, or resilience, all of which can depoliticise and oversimplify social-ecological problems as "scale mismatches" (c.f. Cumming, Cumming, and Redman 2006).

While a concise definition of sustainability remains elusive, scholars across the humanities, social sciences and biophysical sciences can all make meaningful contributions to how sustainability is conceptualised and practiced. We find a definition of sustainability tentatively proposed by Egmose (2016) to be a useful starting point: "Sustainability is an immanent and emergent capability of ecological and social life to renew itself without eroding its own foundation of existence" (249). Life occurs in a place-based context, as the above case studies exemplify. Sustainability, in this sense,

is not a property of development or simple adaptation but rather a dynamic potential to unfold in any lived place. This definition warrants an open and reflexive engagement with living communities to develop understandings of how socio-ecological life is sustainably perpetuated in places.

Returning to Massey (1991), her four key points outlining a progressive sense of place can be adapted for the emplacement framework, to understand its fluid nature. First, like place, sustainability is a process. It is continually unfolding rather than stagnant. Second, Massey points out that places do not have clearly defined boundaries. In contrast with the approach of sustainability science, we pursue sustainability discourse that crosses boundaries and seeks useful knowledge in disciplines that seem conventionally unrelated to sustainability. This is not to say that boundaries are not useful, but that they are negotiated rather than definitive or absolute. Third, sustainability, like places, does not only look one-way. There is not only one sustainable future in which the pristine environment is restored, capitalism is secure and green, and all people are finally equal. Sustainability, like place, is full of internal conflicts – hence the need for a discursive, dialogical approach that recognises fluidity and dynamism. Sustainability is not an answer or a unified vision but a site of disagreement and constructive dialogue. It is through meaningful engagement with the complexity of the concept of place, that sustainability can be remade.

Finally, Massey writes: "none of this denies place nor the importance of the uniqueness of place" (1991: 8). The uniqueness of a place is created through its interactions with other places or entities. Broader interactions enrich the place and enact the wider network that sustains each place. Adapting this idea for sustainability means that while we should be open to interdisciplinary dialogue and engagement, we should also be able to draw lines and create boundaries about what sustainability is and what it is not.

Like Agyeman (2013), we see strong connections between place and sustainability which, drawn up more strongly, could facilitate the inclusion of social-, cultural-, and environmental justice perspectives in place-based dialogues on sustainability. Invoking place creates a focal point amongst globalised, standard research templates purporting integration across pillars (c.f. Turner 2010) disciplines and scales (c.f. Cumming, Cumming, and Redman 2006). In this context, place is both constraining because it holds specific identities, and liberating because identities are always changing, always transforming and in the process of becoming (Creswell 2014; Gibson-Graham 2008). Regardless of the appeal of different models, there is widespread consensus that doing the work of sustainability requires radical interdisciplinarity and new forms of public engagement, which we hope to foster with the emplacement framework.

Lövbrand et al. (2015) are calling for greater recognition of alternative institutions that are doing the work of sustainability in real places, in real time, with real people. We use place as a mobilising and grounding concept for holistic research on sustainability, drawing on the critical social sciences literature to articulate the ethical concerns on which the emplacement framework is grounded. Alternative institutions grounded in place-based negotiations become more visible when this literature is foregrounded, and can be linked to biophysical dimensions of particular places at different scales. Looking at ongoing negotiations about sustainability in places provides a lens to better integrate socio-cultural perspectives and *emplace* sustainability research in concrete decision-making contexts.

6. Conclusion

When we consider a place-based sustainability through a framework of emplacement, we can judge the results in relation to how we want to live and what we want our places to be and represent. "Acknowledging the global dimensions of social environmental problems … solutions to such problems are always embedded in particular times and places, in particular practices and communities of actors" (Egmose 2016, 14). It is an ethical conversation among actors that allows for judgments about what are useful ways to attempt and envision sustainability. Hartman writes: "metaphors, models and frames are both consciously chosen and unconsciously inherited; they grow both deliberately and organically. Insofar as they are consciously chosen and deliberately cultivated, we may judge them",

(Hartman 2016, 133). She is reminding us that our models and framings of sustainability are open for interpretation, flexible, changing, and that our choices, both collectively and alone, have power.

A politics of place requires that we not become complacent with one idealised formation of an environment, place or community, or with an idealised politics of sustainability privileging certain actors and certain ways of knowing nature (Brand and Vadrot 2013). In the Wild Ones example above, native landscaping practitioners seek to manifest an "ecological imaginary" of restored prairie ecosystems, but these have always been dynamic and in flux, changing with the inhabitants and practicalities of the time and situation. Places are always changing, whether through sea level rise in the Marshall Islands or an influx of refugees, as with the Hmong people in Wisconsin. Places change due to human influence; this is true on every part of the planet as has now been well established (Rockström et al. 2009). The emplacement framework is a way to acknowledge this change and bring together as many voices as possible to try to figure out how to move forward.

Within the context of flexibility, the ethical underpinnings of the emplacement framework create certain "guardrails" we believe are necessary for conditions to be sustainable in the Anthropocene. One such guardrail is our choice to maintain definitions of sustainability, economy and community that allow for broad engagement. It is unethical to leave Hmong residents out of conversations about sustainability in the Fox River Watershed; we must define sustainability in a way that includes them. We suggest the emplacement framework may enable the fulfillment of such ethical obligations by providing a way to bring multiple actors to the table to have a discussion distinct from traditional development and climate mitigation discussions. Another guardrail is the interdependence of nature and society. Marshallese identities evince a culture rooted deeply in a particular ecosystem; Jetnil-Kijiner writes "we / are nothing / without our islands" (2017:67). This deep interconnectedness of nature and society generates ethical obligations of caring for the natural world (Puig de la Bellacasa 2010; Barron 2015).

The heart of our work resides in the tensions between real people, their plurality of perspectives, conceptual and flexible notions of sustainability and how they are enacted. Sustainability is, by definition, concerned with the future and decisions that affect the future (Weichselgartner and Kelman 2015). Yet Gibson-Graham (2008) suggests that the present is made up of future possibilities, and that to focus only on the future is actually to negate the diversity of possibilities available in the present moment. We extend her work on economic diversity and place, which highlights already existing yet overlooked economic diversity, to consider instances and examples of place-based sustainability and sustainable practices already present and always changing. We believe this perspective enables a transformative horizon that transcends systematic approaches to sustainable futures. Rather than seeking a depoliticised balance between nature and society, or asking policy makers to embrace a vision of sustainability based on abstract theoretical visions, we seek to uncover sustainability in the present, in place. Such uncovering can illuminate the potential for further sustainability to flourish in places near and far.

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ORCID

Elizabeth S. Barron http://orcid.org/0000-0003-2926-765X
Laura Hartman http://orcid.org/0000-0001-9835-594X

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