PART IV

IV.3 ENVIRONMENTAL HUMANITIES

16

The Environmental Humanities: European Perspectives on How the Field is Addressing Twenty-first-Century Global Challenges

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In their widest constellation, the network of combined disciplines, programmatic approaches and fields of study that make up the Environmental Humanities represent one of the few areas in the academic domain of the humanities that has seen steady, even striking, growth in the higher education sector in recent years. Early in the present 'Decade of Action' to deliver the Sustainable Development Goals,[1] the Environmental Humanities seem more relevant than ever, bucking trends that have seen more and more traditional humanities programmes shuttered and defunded since the Global Financial Crisis of 2008.

In some ways, as seen in the broadest possible view, the Environmental Humanities may appear as something of a cornucopia of disciplines, theories and approaches concerned with all matters environmental, which is to say with all processes, constructs, conceptions and phenomena tied up in a Gordian knot of social and natural interrelations. Environmentally engaged research in the humanities has a long history, extending back in some cases many decades into the previous century, most notably in fields such as environmental anthropology and archaeology, environmental history, environmental ethics and environmental geography. More recently it has emerged in some resurgent modes of political ecology, as well as in the prolific field of ecocriticism, or 'literature and environment' as Lawrence Buell, Ursula Heise and Karen Thornber labelled it generically more than a decade ago. These authors described the field then as 'an eclectic, pluriform, and cross-disciplinary initiative that aims to explore the environmental dimensions of literature and other creative media in a spirit of environmental concern not limited to any one method or commitment' (Buell et al. 2011). Following its true inception as a field of study in the early 1990s, ecocriticism has involved primary engagement with other cultural studies modes as well as aesthetic and critical textual discourses such as film and television, art history, pedagogy, science and technology studies, among a list of others too broad and diverse to enumerate in this context. In the decade since Buell et al. hedged somewhat on the label of ecocriticism, a more radically interdisciplinary Environmental Humanities field has come into force. This development has been less the result of any programmatic unifying efforts among environmentally orientated humanities disciplines (though some have been undertaken) than it would appear to be the effect of a general drift in the academy, evident for decades now but intensifying dramatically over the past several years. This drift represents a move towards question- and issue-driven approaches tied to widely perceived crises of social-ecological precarity in the present century. In the 2020s the Environmental Humanities extends far beyond representation in (or enquiry concerning) environmental questions in 'literature and other creative media', as Buell et al. conceived of ecocriticism/literature and environment a decade ago. It also extends well

beyond scrutiny of various archives and other sources of historical data as an anchoring methodology of early waves of environmental history. The present decade continues to see the launch of international journals and academic publishing series in the field whose editorial boards bring together specialists from a much wider range of disciplines than would have been found even a decade ago, many of whom are not even endemic to the humanities as conceived in the mainstream at the turn of the millennium.[2]

What we have witnessed in that short time is a rapid progression by which the disciplinary currents of many of the humanistic disciplines noted above are converging increasingly into a common stream, now more generally evident as the pluralistic scholarly community of practice of the Environmental Humanities, which 'may eventually inundate, and possibly replace, the tributaries that have formed it' (Hartman 2015). Increasingly interdisciplinary, even post-disciplinary, Environmental Humanities projects and programmes have launched with such regularity, and at such an advancing pace in recent years, that it is no longer a simple task to keep abreast of all the latest courses of study, subject clusters, major and minor study tracks or higher (masters and PhD) degree offerings at universities around the world that align themselves with this new field.[3] Many of these see ecocritics or environmental historians teaming up with anthropologists, environmental philosophers, human and physical geographers, environmental sociologists, historical ecologists, art historians and educational theorists/education for sustainability pedagogues among other environmentally orientated disciplinary communities. Thus, the previously suggested cornucopia has rapidly entered a new phase of engagement, as well as increasing focus and purpose, during the past five to ten years. Nowadays it may be more appropriate to describe the Environmental Humanities complex that has emerged in the phrase suggested by Noel Castree, as 'a house with many rooms'. 'Metaphorically the term has placed a roof over a large but half-built house, in the process allowing stairways and corridors to be constructed and, increasingly, some extensions too. It has thereby promoted a powerful feeling of, if not family, then certainly community and solidarity' (Castree 2021: 437–8).

This is a particularly apt metaphor for the now well-established but as yet incomplete field of the Environmental Humanities, both as an intellectual enterprise and as a community of practice still very much in the making. Its bounding structure is thus evoked almost as organic, growing under a single though expanding roof, undergirded by a common foundation (variously historical, philosophical, aesthetic, social critical and anthropological) that itself is branching out in ways that would have been unimaginable even two decades ago. New rooms and even wings of this house take shape as if according to living design blueprints undergoing augmentation by the year. This structure is evolving not only in response to newly shared and learned methodologies, theories and educational practices across established disciplines, but also as emerging enquiries whose cues and informing influences are as apt as not to be extra-academic. Deriving from a growing cultural, social and political cognisance of the precarity of social-ecological systems, they are appreciable in news cycles and the everyday discourses that flow out from them. From reportage on high-level policy discussions to kitchen-table conversations about the latest one-in-a-hundred-year storm or heatwave occurring in clusters, sometimes year after year, during the past decade alone. The high visibility of these issues in our societies signals a dawning if not an escalating awareness that the very systems structuring and sustaining multispecies communities all over the Earth are at risk of undergoing regime shifts for which the world is not remotely prepared. The full potential of the Environmental Humanities as an evolving field lies at the intersections of endogenous influences and exogenous developments

erasing lines of demarcation between the higher education and research sector, on the one hand, and fraught systems of life and death on the other. In one sense, the good life for a relative minority occurs at an unimaginable distance from the degradation of social-ecological systems around the world, as the most vulnerable people and the least protected ecosystems become the invisible costs of doing business. At the same time, extractive exploitation tied up in dominant systems of production and consumption are coming to be perceived and understood as manifestly unsustainable. Tipping points await, and in some cases are already being passed, and these crises have brought a new sense of urgency to higher education and the research sector. The academy is not an immovable, granite-anchored lighthouse, stable over time and impervious to rising tides and stormy (acidic) seas agitated by the appetites and needs of nearly 8 billion human beings – actually, some of them more voracious than the rest. The various rooms and corridors of our Environmental Humanities house continue to expand and merge through a process of continuous renovation and refurbishment. As they do, seemingly implacable iron doors open up unexpectedly to passageways; and massive outer walls – once thought to be load-bearing structures – prove illusory, coming down with surprising ease, without however bringing the house down along with them.

This chapter offers a brief and limited tour of this house, though it pauses to provide a suggestive survey of a few selected rooms. We aim to showcase some sense of the richness of these connected spaces – by which we mean not only their underlying reinforcing affinities but also the broad scope and diversity of the projects and preoccupations now unfolding in this burgeoning field. In particular, we focus on the spaces of environmental justice, material ecocriticism and integrated Environmental Humanities. By design we include these three examples because they represent very different approaches and frames of reference within the Environmental Humanities, in terms of theory, contexts of engagement and also, to some extent, outputs, impacts and interdisciplinary configurations. It is worth noting that the field of the Environmental Humanities, while often sharing an underlying concern with social-ecological questions and a preoccupation with environmental change, also contains 'multitudes', as Walt Whitman wrote of himself in 'Song of Myself'. This great diversity extends to theories, methods, subjects, materials and often enough positions on a range of questions. We consider it a sign of the field's fecundity that many scholars within the field may well disagree with one another vehemently on some questions. In fact, the three authors of this chapter do not agree on everything, which seems particularly fitting insofar as that situation accurately reflects the diversity of ideas, positions and arguments of a dynamic field's scholarly engagement. In one or two places we may even choose to flag up where we may disagree with one another, rather than strike a conventional (fictional?) pose of unanimity on every question. Co-authoring this chapter has not implied erasing the diversity of our small group, but it does assume that diversity is a source of wealth in the field and a sign that the field has not lapsed into doctrine or dogma; it also suggests a preference for an academic practice based on respectful listening and understanding rather than on winning every argument.

Environmental Justice as a Pillar of Environmental Humanities

Following some of the reflections above it might seem reasonable to ask at the outset: *What are the Environmental Humanities good for?* But the counter-objection comes immediately: *How legitimate is this question?* As critical humanities scholars, are we not obligated to challenge the productivist rhetoric that seems to be haunting academia in its current neolib-

eral iteration, wherein universities are expected to produce knowledge that is immediately quantifiable and usable? Usable to whom? To what end? This kind of instrumental argument has often been employed by right-wing politicians to shutter academic humanities programmes, which they deem either to be too progressive or too opaque for sensibilities that only appreciate the sharp angles or concrete stolidity of factories and power plants, or the targeted fluidity of brokerage firms. Accusing the Environmental Humanities of being too oblong, too qualitatively indefinite, is a political and an inherently ideological challenge to knowledge that does not lend itself overtly to a market economy. 'Why should taxpayers foot the education bill for an anthropologist who can't find a job?', asked former Republican Governor of Florida Rick Scott, exemplifying the paradigmatic neoliberal attack on social sciences and humanities disciplines for the fault of being too far removed from the immediate calculus of market forces to have any real value to society. Arguably, these American-incubated 'culture wars' and their self-interested criticisms reflect a corporate vision of the academy that effectively trains student-customers to become uncritical consumers or docile precarious workers. Europe is far from immune to these influences and trends.

On the contrary, we believe that it is precisely their social and political relevance for the challenges of the contemporary world, to some degree independent of market forces, that has made social sciences and humanities the preferred target of radical right agendas and political attack campaigns (Schrecker 2010; Kamola 2019). Imagining possible futures, questioning colonial pasts and present, tearing apart the veil that silences and normalises injustice, speaking truth to multiple forms of power, rethinking the practices of citizenship and, not least, working to identify, reconceive and safeguard the institutions of the commons are only some of the 'useful' things that the human sciences in general, and the Environmental Humanities in particular, know how to do very well.

Such knowledge, skills and practices are so powerful and useful, in fact, that they trigger regressive politicians who understand the threat they pose to their own agendas of self-interest, the end towards which a demagoguery of institutional distrust is a cynical but often effective tool. In turn, academic curricula that develop such capabilities are frequently the targets of so-called 'educational reform' or cost-saving measures reinforcing 'strategic realignments' of university programmes. In May 2022 the UK's largest academic union, the University and College Union (UCU), wrote letters of protest to the Vice-Chancellors of the University of Wolverhampton and the University of Roehampton after the first university suspended c. 140 undergraduate and postgraduate courses and the second warned more than 200 teaching staff, predominantly in humanities programmes, that their jobs were at risk due to a 'strategic realignment' within the university. Noting that cuts to arts and humanities programmes in UK universities were becoming 'endemic', the UCU described these last in a long and troubling series of cuts over the past decade as an 'attack on education' (Baker 2022) that also happens to disproportionately affect the humanities. As in the case of these particular cuts to humanities programmes, so-called curricular reforms and realignments may seek to excise whole subjects from a university's curriculum, or simply leave them to wither to die on the vine after successive budget expropriations and austerity measures. Extraordinary cases of institutional myopia abound in which false choices seem to be offered between learning how to build a lithium battery or the evergreen internal combustion engine and working collectively to achieve a more just society. In the rationale of politicians or in the framing of public debate on higher education and research, it is hardly inevitable that these goals should be pitted against each other, and yet this master narrative surfaces time and again (Marcone 2022; Trott et al. 2020).

Therefore, asking what the Environmental Humanities are good for, as we do here, need not imply this neoliberal vision of the role that higher education should play within our societies. We argue instead that the direct social and political engagement of the Environmental Humanities with current socio-ecological crises is a major part of the field's value. This engagement is neither linear nor monothematic, but rather entails a multiplicity of angles. All of these approaches, however, are quite different from the search for techno-fixes typically pushed by neoliberal interests as the answer to our societies' most intractable problems. For instance, work on toxicity and environmental justice carried out by Environmental Humanities scholars does not stop at issues of infrastructure and capital, but pushes on to unearth narratives of oppression and resistance (see, e.g., the Environmental Humanities Laboratory's project ToxicBios, illustrated by Armiero et al. 2019). A participatory project aimed at co-designing a grass-roots plan to address climate change in New York (Climate Action Lab 2019[4]) represents another approach in justice and solutions-orientated Environmental Humanities that does not depend on *deus ex machina* technical optimism. These cases are but two examples from the authors' own immediate experiences.

It is often repeated in the public debate that we are in an emergency, and we need quick answers. The social-ecological crisis indeed requires urgent answers, but before we launch headlong into the quest for solutions, we cannot abdicate our responsibility to scrutinise the very terms of the questions themselves. Wrong questions will never lead to the right solutions, no matter how quickly they stimulate a coordinated response. Ethical efforts to address socio-ecological crises require not only a deeper scientific or technical understanding of their causes but also their frequently unjust effects on the most vulnerable. Thus, recognising the entangled social and ecological aspects of current global crises reminds us pointedly that environmental problems are also social. This fundamental insight underscores the principal point we have argued so far, namely that the Environmental Humanities are especially well-equipped to address the intersectional dimensions of these crises, beyond calls for profit-generating techno-fixes and the reductive reification of the problems. As long as the world depends on profitable solutions to intractable problems, there will be unacceptable in-built risks that the profit motive will outweigh planetary needs in the fullest (multispecies) sense, which is no real solution at all. We believe that the Environmental Humanities may be even more necessary than ever to challenge the profound crisis of collective imagination and will that have not yet produced actionable alternatives to the present organisation of socio-ecological relationships on Earth (Fisher 2009).

The Environmental Humanities provide powerful thematic and methodological tools for investigating the causes of our socio-ecological crises; the rich debate on the Anthropocene, its nature and origins, for example, proves this point explicitly (Castree 2014). Many scholars in the field are not at all satisfied with the universalist implications of the Age-of-Humans narrative. Instead, their work focuses on inequalities deeply embedded in our socio-ecological crises (Nixon 2011; Haraway 2015; Opperman and Iovino 2017; Moore 2018; Armiero 2021). The idea of culpability of the human species as a monolithic actor in the Earth system is exposed as patently inaccurate and misleading, not least in its partial shifting of blame to those with the least influence over prevailing conditions who are also among those suffering the most.

Hannes Bergthaller et al. have proposed environmental justice as one of the possible cornerstones on which the Environmental Humanities can be built as an interdisciplinary project: 'As a concept, environmental justice certainly identifies overlapping territory

where social, cultural and environmental challenges must be confronted all at once' (2014: 271). Analysis of the unequal distribution of environmental burdens and privileges across more and less developed countries is not only the prerogative of social scientists – sociologists, geographers, ecological economists and political ecologists in general – but also of humanities scholars. As early as 2005 Lawrence Buell underlined the relevance of the environmental justice movement for literary ecocriticism, as Joni Adamson and Slovic Scott have reminded us (2009: 6). This represented a shift from a conventional focus on nature writing by some of the major proponents and leading theorists of first-wave ecocriticism to a broader understanding of what environmental writings and ecocritical analyses could become. What the following years have revealed is that both primary texts and critical discourse addressing these works have become tools not only for fostering understanding and building awareness of environmental issues beyond national imaginaries, but for dismantling powerful cultural tropes and narratives that have long upheld dominant paradigms (e.g., settler-colonialist, toxic masculinist, laissez-faire capitalist, among others) through which human communities and natural systems have long been exploited and abused. Something similar happened in the environmental history field, when scholars started to evolve from the Eurocentric celebration of wilderness and the heroic history of its alleged protection, to the mundane and brutal experiences of people living and working in contaminated environments (see, e.g., Hurley 1995; Barca 2014a; Griffith Spears 2016). This narrative shift is significant, as social variables such as race, gender and class forcefully entered into the realm of what naïvely and reductively used to be called *Nature* (with a capital 'N'), changing how scholars looked at the place of humans *in* nature (with a lower-case 'n'), as well as how human groups act on, shape and are affected by *environment*.

In contradistinction to *Nature/nature*, the concept of *the environment* expresses in a less historically loaded way the inextricability of 'human and natural systems', as these purportedly distinct dimensions continue to be called unapologetically in environmental sciences (Liu et al. 2007; Ferraro et al. 2019), in a usage that remains deeply influenced by Cartesian ontological dualism. The environment, as an alternative conception to Nature/nature, represents an intractable conceptual and physical space that is always social-ecological. An awakening to the limitations of nature as a concept, as classically understood and accepted through much of human history, has arguably been one of the forces animating the rise of modern environmental studies (as distinct from environmental sciences) as a field influenced by the humanities – not least by the disciplines of philosophy, linguistics, cultural studies and the history of science and ideas. 'Environmental studies is predicated on an operative conception of *the environmental/the environment* necessarily distinct from unproblematized notions of the natural/nature that remain otherwise very much alive in the culture at large' (Hartman 2017: 3).

The Environmental Humanities have also brought new perspectives and methods into environmental justice studies. Thus, drawing on an ecofeminist tradition dedicated to revealing 'the ways that our social, economic, and political practices are racialized and gendered', Greta Gaard has challenged Environmental Humanities scholars to both channel and move beyond critique by imagining and working to achieve a transformed human relationship to the Earth. In Gaard's vision, a just and reinvigorated practice of sustainability holds the promise of addressing and redressing the systemic inequities bound up in the reified self-other dualisms of Cartesian thought (Gaard 2017: 21–3). Such a qualitative class-race-gender approach has effectively opened up a wider set of materials for scholars to analyse and co-produce. Relevant examples are: the poems of a petrochemical worker; interviews with women living in contaminated areas; works of art produced by an activist

photographer; a film installation co-produced by a First Nations representative calling for environmental interventions on climate change based on collaboration between custodians of indigenous knowledge and mainstream scientists; an anonymous scrapbook donated to the University of California archives documenting (without commentary) both oil-extraction industry innovations and 'achievements' and the devastation from oil spills along Californian coasts during the 1950s and early 1960s (Armiero 2014; Brugnaro 1997 via Barca 2020; LeMenager 2014: 48–9; Norrman et al. 2018; Schirato n.d.). These are all valued sources of analysis for an Environmental Humanities enquiry focused on questions of environmental justice. So too are environmental assessments and policy documents, as well as scoping and translational practices, that serve as the principal outputs, mechanisms and participatory structures of today's science-policy interface on questions addressing global sustainability (Castree 2020, 2021; Hartman 2020; Hartman et al. 2020).

The Environmental Humanities spotlight on injustices has also mobilised a different set of questions. Donna Houston (2013) and Stefania Barca (2014b) have framed the issue of environmental justice in terms of narrative justice. They argue that subaltern communities have not only been harmed by the unequal distribution of environmental destruction and poisoning; their stories of oppression – and resistance – have also been silenced and made invisible. Marco Armiero has written about the imposition of 'toxic' narratives; that is, of 'the storytelling infrastructure which hinders the possibility to even see the injustice while blaming the affected communities for problems caused not by them' (2021: 21).

The Environmental Humanities are exceptionally well equipped both to analyse narratives of toxicity and community poisoning and to contribute to narrative justice; that is, 'unearthing or coproducing more just narratives by exposing injustice while exploring paths and visions that have often been ignored' (Armiero et al. 2019: 7). In the context of a tragic dam disaster (Ribadelago, Spain, 1959), for instance, Gorostiza and Armiero have addressed the idea of *narrative reparation*, by which is meant the survivors' quest to create, maintain and share their memory of what happened (2021: 88). Something similar occurred in the case of the Vajont Dam Disaster (Italy, 1963), where the mainstream regime of memory first erased the disaster from the collective memory of the country, and later tried to domesticate it by transforming the victims' cemetery into an anonymous and anaesthetised official memorial (Armiero 2011: 193–4). Similar ambitions lie behind the Futures Beyond Refining project led by the Penn Program in Environmental Humanities at the University of Pennsylvania, which explores the historical relationship between the South Philadelphia oil refinery and its surrounding neighbourhoods, disseminating data on impacts of refining, and engaging residents of the affected areas in imagining alternative futures for their communities. Similarly, the Swedish-based environmental humanities collaboratory The Seed Box has hosted a research project on 'fossil fuel entanglements' that has worked with the performative power of narratives exploring 'the stories told about the fossil free society by industrial workers and local citizen groups'.[5]

In public discourses it has often been said that the preservation of memory is indispensable in order to avoid the repetition of past and present mistakes. The Environmental Humanities can do much more than simply provide tools for archiving the memory of what has happened. Thinking of memory and environmental justice through an Environmental Humanities approach may also entail unpacking the plurality of memories experienced by different groups. And those multiple memories, however influenced by affect and lived experience, are always organised by power relations, which give different currencies to each of them. In this sense, the issue is not to preserve the memory, perhaps in some form of frozen mainstream musealisation, but to explore and foster the plurality of memories

– and to investigate the suppression and repression of some of these memories – through insurgent museology, among other methods.[6]

In the wake of Black Lives Matter, when racist and colonial textures of public memory have been unveiled and challenged so powerfully, the Environmental Humanities can contribute to that emancipatory project by exploring the toxic legacy embedded everywhere around us: in monuments, toponomy, syllabi, cultural industry and, perhaps, even the paintings looming over us from the walls of our university libraries. Similarly, human rights abuses, in conjunction with environmental, economic and public health crises, often intersect in divergent (separate and unequal) forms of interaction that demographically disadvantaged groups and communities may experience in the cultural patchworks of civil society and the public sphere. In their work on syndemics Joni Adamson and Steven Hartman have addressed how the 'discriminatory practices that target minority communities for violent policing and polluting industries are, in many cases, effectively the same practices that are putting African, Latinx, and indigenous Americans at heightened risk for COVID-19' (Adamson and Hartman 2020).

The merging of the Environmental Humanities and environmental justice in addressing the stratification and unfolding of toxic narratives leads to a political ecology of memories and narratives, which has already been practised, though not labelled as such, by several scholars across diverse disciplinary fields. Rob Nixon (2011) has been one of the most vocal proponents of what we have called a political ecology of narratives and memories. His *Slow Violence and the Environmentalism of the Poor* has become a cornerstone in the making of a politically engaged Environmental Humanities. Nixon analyses a vast array of writer-activists, often from the Global South, uncovering their counter-hegemonic narratives of the slow violence enforced on them by global capitalism. However, for Nixon those counter-hegemonic narratives are not only a denunciation of violence; they often offer imaginative visions of possible futures. Exploring narratives allows both of these objectives, and others, to be accomplished. The prefigurative, cautionary and preparatory potentials of narratives – whether in the form of science fiction or as popular scientific case illustrations of the effects of environmental change based on scientifically rigorous climate models – provide good examples of cultural texts beyond more traditional literary works that the Environmental Humanities are particularly well-positioned to explore. Where are the prefigurative narratives of subaltern communities and elites today? Perhaps they are embedded in the design of a gated community, hidden in plain sight in the graffiti murals of a favela, expressed in the rhymes of an urban rapper or in the eloquence of an indigenous youth activist (Bagaeen and Uduku 2010; Schwartz 2012; Assalti Frontali 2016; Norrman et al. 2018).

How do these dimensions of the Environmental Humanities play out in a European context? We will draw attention to one example connected to one of our co-authors in what is otherwise a rich and diverse tableau of representative research environments that can be found from Turkey to Portugal, onward through the North Atlantic from the UK to Iceland, and from Malta and Italy in the Mediterranean to Russia and the Nordic countries in the far north of Continental Europe.

Since 2016, the Environmental Humanities Laboratory in Stockholm has chosen as its slogan the phrase *Undisciplining humanities since 2011*, which is the year the laboratory was founded. A slogan is neither a theoretical nor a methodological essay. It is primarily a declaration of principle, or, to use the words of Tomas Pernecky, an 'act of declaration' (Pernecky 2020). And it states a refusal even before a proposal, without offering arguments for either. Being undisciplined therefore implies the freedom to say no to conven-

tional ways of organising and legitimising knowledge production. The explicit function of academic disciplines is to organise knowledge, people and the world. We should not confuse our organisation of the world for the purposes of intelligibility and dissemination of our ideas with the world itself. In other words, it is not only scientific knowledge that is ordered following the logic of disciplinary cataloguing, but it is the very object of study that is in turn catalogued, classified and above all separated from the rest of experienced reality. Being undisciplined therefore does not mean being unconventional or naïve or lacking analytical, theoretical and methodological rigour. Rather it can mean being prepared to be epistemologically anarchical, if necessary, in a quest to free oneself while acknowledging the limitations of the disciplined knowledge in which we – as humanities scholars – have long trained, very often in support of a status quo that has been, at various turns, even in recent history, colonialist, discriminatory, repressive, rapacious – in a word, unjust.

In this sense, being undisciplined is directly connected to feminist and decolonial calls to 'free our minds', to situate and decolonise ourselves in order to be more accountable for our knowledge production practices and their applications in the wider world. This is not a statement against methods, nor against disciplinary concentrations of knowledge as accessible, intelligible and communicable through particular theoretical frameworks and discourses, as much as it is a way of mobilising multidisciplinarity and transdisciplinarity and recognising that there are other legitimate ways of doing research that may not be long established through time-honoured traditions of disciplined scientific logic.

The Material Ecocritical Turn as an Animating Force in the Environmental Humanities

Serenella Iovino has provided an exemplary demonstration of this kind of widening of what can be called the protypical Environmental Humanities 'canon' in her work on Italian ecocriticism – not by chance deeply committed to environmental justice. Pondering the amphibious nature of Venice, the contradictions between the vineyards and the asbestos of Piedmont, and the porous bodies of Naples, Iovino writes:

> All these landscapes and more-than-human collectives are texts bearing material stories – stories of resistance and creativity that transcend their local reality, demanding to be read and thus liberated from their silence. (2016: 1)

An important corollary of this enlargement of the canon is the entanglement of external and internal ecologies (i.e., the internal ecologies of human and more-than-human bodies and the external ecologies of the environments in which those bodies are immersed). As Iovino speaks of the porosity of the body, permeable not only to toxic contaminants but also to narratives (22), Stacy Alaimo has developed the powerful category of transcorporeality, which implies that 'all creatures, as embodied beings, are intermeshed with the dynamic, material world, which crosses through them, transforms them, and is transformed by them' (2018: 435). An environmental justice perspective is needed to avoid a naturalisation of transcorporeality – or porosity; the entanglement of internal and external ecologies, of bodies and the environment occurring within a frame of power relations organising that exchange. Building upon Stacy Alaimo's argument (2010), the dusty and sick lung of the worker does not speak only of a generic entanglement of human and non-human ecologies, but rather also of the unjust organisation of labour relationships

leading to the devaluation of some people's lives. Nature-culture entanglements do not occur outside power. Neither do they occur outside the agentic expressions we find in the storied worlds of biotic and abiotic matter. Entanglement in this sense confirms the symbiotic relationships which make the human and the non-human ontologically inseparable. The study of this symbiotic relationship has been further extended to the planet's protean seas by Serpil Oppermann. Taking the storied dimension of material ecocriticism to the Blue Humanities, she reads the ecology of the planet's oceans and their inhabitants through their entangled expanses in material-discursive contexts. Highlighting the storied capacities of marine creatures, she asks a pertinent question: 'What if there are narrative pathways for marine organisms to express themselves in contingent patterns of creativity?' (2019: 452). Literally and figuratively, she suggests, the sea 'wants us to be attentive to its meaningfully articulate inhabitants' (452), and she argues that such an approach would neither distance us from the sea's materiality nor prevent us from confronting aquatic problems that are at once social, ideological and political. She insists, therefore, that:

> [t]he storied sea today is a hybridizing mix of the Anthropocene dilemmas within which marine creatures play out entwined ecological crises and material intimacies. And, whether they live in the pelagic or benthic zone (where no sunlight penetrates), they want their voices heard, their stories recognized, and their attempts to stay alive understood. (453)

Whether aquatic or terrestrial, the non-human in the material ecocritical vision is never mute; everything that is of this Earth 'project[s] a storied existence conveyed in signs, colors, sounds, signaling, and codes we may or we may not yet fully understand. These species are narrative agencies' (Oppermann 2019: 453). Such is the understanding of the material world's storied agencies that material ecocriticism has been repeatedly stating for some time now.

Material ecocriticism sees all biotic and abiotic forms of matter – in molecular, mineral, vegetal or animal form – as agentic and expressive (or 'storied'),[7] stimulating a critical self-reflection and moral accountability on our part as humans so that we stop perpetuating forms of injustice, both ecological and social. When all Earthly life is endangered by extreme environmental degradation, climate emergency and stressed ecosystems, imagining first how we can change course and then thinking differently about our ways of resolving ecological uncertainties – other than offering high-technological solutions – become urgent necessities. Material ecocriticism is grounded in this anticipatory kind of thinking to effect a change in our mindset immersed in centuries-long anthropocentric thought patterns. Material ecocriticism asks us to *think with* the Earth and its non-human inhabitants, to *think with* those beings who suffer the consequences of destructive human practices. To think with them means to discern, decode and understand the stories of other-than-human beings and material agencies, whose messages today about their worldly conditions are rather dismal, because we all live at 'a time of rupture, a world haunted with the threat of extinction' (Gan et al. 2017: G 6).

When the natural world bears the burden of mass commodification of natural resources, soil degradation, deforestation, burning of fossil fuels, deep-sea mining, hydraulic fracking, and other destructive human activities, species extinction is bound to happen. But this planet is not entirely a human realm, and those hardest hit by environmental injustices are mostly non-humans as indicated by the diminishing numbers of species in biodiversity databases and *Red Lists* of endangered species such as the International Union for

Conservation of Nature List of Threatened Species, which shows more than 700 species facing extinction. Among them are penguins in Antarctica, sea turtles in the Atlantic, butterflies in Spain and coral in the Great Barrier Reef. All are victims of the changing environmental conditions, pervasive pollution and other human-induced stressors on physical environments. We need to understand that the logic of present socio-economic and political systems subjugates not only disenfranchised humans but also everything else – all the non-human entities – that are exploitable, which has so far resulted in the relentless disruption of the Earth's rhythms and biocycles, species concentrations, distribution and variety, and ecosystemic processes. One of the essential problems here is that the non-human is assumed to lack a voice of its own to demand its rights. This is of particular interest to material ecocriticism, which finds it necessary to envision the world differently beyond the confines of anthropocentricism, specifically encouraging us to read the stories of the Earth's communities.

Material ecocriticism promotes open-mindedness and focused attention on the stories of all material agencies (organic and inorganic alike) and underlines the significance of valuing their being in the world in these urgent times that many scientists are calling the Anthropocene, a term many social scientists and humanists have variously challenged.[8] Recognising all things and beings as storied subjects of an ongoing Earthly tale elicits more Earth-friendly modes of thinking and acting beyond anthropocentricity, alerts us to a change of direction in our theoretical frameworks, and ensures respect and protection for everything that is not human. Prioritising their right to express their sense of being in the world, along with all of these priorities, connects material ecocriticism to the wider field of the Environmental Humanities. Material ecocriticism is part of the field through the theoretical tools it provides for investigating biodiverse habitats, life forms, cultures and ecologies. Due to their shared conceptual grounds, both material ecocriticism and the Environmental Humanities more generally share 'a commitment to the world-making power of narrative' (Cohen and Foote 2021: 2) to inspire new hopes for sustainable biotic existence and dis-anthropocentric ways of thinking about the world.

What also makes material ecocriticism central to the projects of the Environmental Humanities is a shared acknowledgement that stories embedded in everything more-than-human and stories emerging from human and non-human entanglements are powerful tools for expanding our sense of awareness and response-ability (in Karen Barad's terms) about social and environmental conflicts and planetary-scale ecological ruination. Narratives also have the power to change, re-enchant and create the world that comes to our attention in participatory perceptions. Hence the reason why scholars in the Environmental Humanities focus on 'the narrative coordination of different registers of knowledge and experience around central questions of climate change and ecological crisis' (Cohen and Foote 2021: 2). In their 'Introduction: Climate Change/Changing Climates' to the edited collection *The Cambridge Companion to Environmental Humanities*, Cohen and Foote also ask a foundational question initially raised by material ecocriticism: 'Do only humans possess story?' (2021: 3). Answering this question with an emphatic no, material ecocriticism posits that matter in its biotic and abiotic forms is storied matter, which can be defined as the 'ontological performance of the world in its ongoing articulation' (Barad 2007: 149). As such, storytelling is not an exclusively human practice, and matter in biotic and abiotic forms carries stories of its own, manifesting in various signals, gestures, colours and sounds, which material ecocriticism reads as storied matter. Seeing storied matter as a meaning-producing embodiment of the world, material ecocriticism posits that 'the stories of matter can help us better understand fragile ecosystems, polluted

landscapes, carbon filled atmosphere, acidifying oceans, changing climate, species extinctions, and social crises' (Oppermann 2017: 294). The stories of organic and inorganic material agencies (such as dying species, felled trees, polluted oceans, discarded objects) show that matter is indeed a signifying agency, demonstrating the ability to communicate its stories.

Refusing thus to see matter as passive, inert or as an inanimate substance that humans give meaning or form to, material ecocriticism acknowledges matter's agentic and expressive capacity, its inherent creativity and performative enactments, claiming that matter is always already storied matter. Briefly stated, material ecocriticism explores the narrative potential embodied in all material formations. In this perspective, all material agencies, from the sub-atomic to the higher levels of existence, possess agentic capacity, articulating meaningfully, and thus being enmeshed in what Donna Haraway calls 'semiotic materiality' (2008: 163), which is not the property of biological organisms only but of inorganic matter as well. Thus, all matter – biotic or not – is not only agentic but also endowed with creative expressions and capable of producing meanings.[9]

The concept of agency here is not reducible to its corollaries of voice, freedom, intentionality, intelligence, personhood, subjectivity, responsibility and action, which are qualities always associated with being human. Rather, agency is the ability to produce effects and make a difference. That is why, as Jane Bennett contends, everything 'is, in a sense, alive' (2010: 117), including garbage, electricity, storms, hurricanes, viruses, toxic chemicals and even sub-atomic particles that produce effects in their surrounding environments. Bruno Latour helps to elaborate this idea:

> If action is limited a priori to what 'intentional,' 'meaningful' humans do, it is hard to see how a hammer, a basket, a door closer, a cat, a rug, a mug, a list, or a tag could act. They might exist in the domain of 'material' 'causal' relations, but not in the 'reflexive' 'symbolic' domain of social relations. By contrast, if we stick to our decision to start from the controversies about actors and agencies, then *any thing* that does modify a state of affairs by making a difference is an actor. (2005/2007: 71)

If we rethink agency in terms of the participation of things in the processes of action as assemblages, as Latour does, then we come to view human, non-human and inorganic material agencies in terms of their entanglements, continuously emerging in their complex interactions with human subjects. Barad, too, has convincingly argued that agency signifies 'an enactment, not something that someone or something has' (2007: 178). Agency is not an attribute, and is 'not restricted to the possibilities of human action'; rather, as she puts it, '[a]gency *is "doing" or "being" in its intra-activity*' (2007: 178; italics in original). Barad's concept of intra-action designates a phenomenon of the inseparability of objects and subjects and 'signifies the mutual constitution of entangled agencies'; in her words, 'the notion of intra-action recognizes that distinct agencies do not precede, but rather emerge through, intra-action' (2007: 33). In the parlance of material ecocriticism, agentic matter produces creative expressions as 'storied matter' in this undivided field of existence, which 'compels us to think beyond anthropocentricity and about our coexistence and coevolution in the story of the earth itself' (Oppermann 2018: 412). Story here is redefined in larger non-human patterns beyond the foundational notion of human storytelling as a form of creative expressions that material agencies display. Story is a means of creative becoming which humans may not immediately recognise or easily read. To offer some appreciable examples of non-human storying of the world, we can call to mind gla-

ciers, which reveal stories of deep time and ancient bacteria just as volcanic rocks reveal immemorial stories of the planet's geological unpheavals. Similarly, fungi which join trees in the world's forests offer storied subjects of resilience. Fossils, too, as geologist Jan Zalasiewicz observes, 'tell the story of themselves and of their changing world at the end of an era' (2008: 115). In fact, all materials' agencies are storied subjects in the parlance of material ecocriticism.

Underlying this radical conceptualisation of matter in terms of its vitality, creativity, meaningful becoming, and, above all, its eloquence is the material ecocritical attempt to revise our old conceptual categories that led to oppressive dualisms, reducing everything non-human to its usefulness to the human. That means placing a broader emphasis on nature's equally effective agents – from humans to minerals, and even sub-atomic particles – all of which participate in dynamic processes of creative expression, or storied matter's narrative agencies, defined as 'a nonlinguistic performance of matter manifesting itself often in expressive collectives'[10] or as 'enactments of creativity and vitality' (Oppermann 2014: 30). By not reducing them to mere metaphoric values, we regard narrative agencies as the active co-authors of the grand story of our evolutionary processes, producing innumerable stories of ecological relations, and making us realise that humans are not the only beings capable of producing meaningful narratives.

Everything is a narrative agency, telling a story: animals, plants, metals, volcanoes, toxic chemicals, geological formations, hurricanes, landscapes, stones, bodies, elements, genes, cells, atoms – and the list goes on. All of these project images of expressive Earth communities that enact creative expressions in 'an interstitial field of nonpersonal, ahuman forces, flows, tendencies, and trajectories' (Bennett 2010: 61). And they ineluctably extend into human habitats, social and cultural systems. Thus, human, non-human and material agencies are always interconnected in a 'complex web of all possible relationships' (Haraway 2008: 138).

Material ecocriticism posits that since narrative agencies emerge through their interchanges with the human, their stories project a very real image of a disenchanted world overrun with catastrophic human practices, and consequently social as well as ecological crises. Storied matter in a disenchanted world makes us seriously consider our invasive economic practices that produce planetary cycles of pollution, and our political decisions and cultural meanings that are enmeshed in their production. Material ecocriticism also claims that narrative agencies of storied matter can lead to a change of perception in our ways as humans, and urge us to *think with* all species, as well as inorganic material agencies, to help build and work to ensure respect for the planet. Moreover, narrative agencies make us think across humans, non-humans, bodies, natures, cultures, classes and the physical environments in ways that highlight their right to survival. Such a rethinking allows us to be part of the Earth's physical systems. After all, as Donna Haraway points out, 'we think, act, narrate, metabolize and come into and out of existence through each other' (2015: vii). Stories that emerge from such criss-crossing of humans and non-humans signal the necessity to change our anthropocentric mindset fostered through harmful practices, which have engendered biospheric, atmospheric, cryospheric and hydrospheric crises on a planetary scale for our common home, the Earth.

The narrative agencies of storied matter can be seen as 'a community of expressive presenses' (Abram 2010: 173) that 'have the ability to communicate something of themselves to other beings' (Abram 2010: 172), such as swarms of bees, or as Abram specifies, 'waterfalls', 'riverbeds', 'compost piles', 'clouds', 'rusting automobiles', 'grains of sand', 'tax forms', 'shed antlers', 'snowdrifts', etc., which he claims, 'are all expressive' and have

'communicative power' (2010: 172). Barad explains this communicative process as 'an ongoing performance of the world in its differential intelligibility' (2007: 335), or in other words, 'different articulations of the world' (335) revealing diverse kinds of intelligibility. Although overlooked by the human part, intelligibility emerges when 'part of the world becomes differentially intelligible to another part of the world' (Barad 2007: 342); intelligibility is, therefore, not a specific human capacity. In light of these views, material ecocriticism takes matter as an ontologically meaningful entity; that is, as 'an effective player in an 'ontologically heterogeneous field' (Bennett 2010: 23). Understanding matter as 'a dynamic expression/articulation of the world in its intra-active becoming' (Barad 2007: 392) is also recognising matter's narrative dimension. Matter thus becomes a site of narrativity and can produce its own meanings. Hence, the narrative agencies of storied matter, from animals to plants, bodies to fossils, are all expressive and carry stories that may or may not always be legible, or easily identifiable, but they always remain as the invaluable records of planetary life. The key point in this argument is that reading and understanding the stories transmitted by the narrative agencies of storied matter encourages us to move our anthropocentric vision from the language of otherness to that of human-non-human co-emergence, which then enables us to *think with* the Earth. Thinking with the Earth in turn makes us recognise nature as part of us, thus modifying our myopic sight of seeing it as a world apart from us. Such recognition not only urges us to act responsibly as part of the world but also underlines the importance of the ethical subject as 'an embodied sensibility', the embodied self whose 'ethical relations extend to the other-than-human' (Barad 2007: 391–2). This is the intertwined narrative of our interdependence with storied matter.

It is important to note here that the material ecocritical theory should by no means be seen as a way of anthropomorphising nature and/or matter, but as a disanthropocentric strategy to reveal the symmetries between humans and non-humans. This theory enlarges our horizon of meanings to the wider material-semiotic world by focusing on 'a world filled not with ontologically distinct categories of beings (subjects and objects) but with variously composed materiality that form confederations' (Bennett 2010: 99). If this theory is extended to socio-political articulations and global decision-making processes that include ethical concerns as parts of these processes, which are central concerns in the Environmental Humanities, then we can begin to understand how human and non-human well-being are always interconnected. We do need a fusion of horizons here to act responsibly as part of the world, extending our 'ethical relations . . . to the other-than-human' (Barad 2007: 391–2). This is our attempt to change the way we perceive the world.

Integrated Environmental Humanities as a Pathway and Model for Wider Humanities' Engagement in the Science/Policy Interface

But how do we change the world of human action? And what role might the Environmental Humanities play in the science/policy interface where humanistic knowledge has long been absent, assumed or filled in by natural scientists? One noteworthy approach is that of integrated Environmental Humanities. This approach has been foundational in the establishment of an international humanities-led coalition for sustainability science developed in close cooperation with UNESCO and policy makers in the Intergovernmental Council of the Management of Social Transformations programme.

In the years leading up to the UN Decade of Action to deliver the Sustainable Development Goals (2021–30) a great many voices have called for the integration of the humanities in mainstream sustainability efforts, not least in support of the science-policy nexus (LeMenager and Foote 2012; Palsson et al. 2013; Castree 2014, 2021; Hartman 2015, 2020; Holm and Brennan 2018; Holm et al. 2013, 2015; Filho and McCrea 2019; Hartman and Oppermann 2020; Jackson et al. 2022). It has also long been recognised that international cooperation in research and higher education is essential to finding solutions to global sustainability challenges. These positions co-aligned in the context of a recent UNESCO project undertaken to help UN member states operationalise inclusive Sustainability Science in the higher education and research sector in support of better coordinated efforts to achieve the goals of the Paris Agreement and the UN's 2030 Agenda for Sustainable Development, two major intergovernmental agreements endorsed by nearly all the countries in the world in 2015.

From 2015 to 2017 the international project 'Broadening the Application of the Sustainability Science Approach' (UNESCO 2015) brought section heads from several UNESCO sectors together with international scientific councils, national ministries of science and education, sustainability institutes and experts from around the world, to examine good practice and recommend how the interface between academia and sustainability practitioners – at the levels of policy, governance and action – could be enhanced to strengthen the sustainability agendas of UNESCO member nations. Two key outcomes of the project included: (1) the launch of UNESCO's 'Guidelines on Sustainability Science and Education' (UNESCO 2017) in 2018; and (2) the initiation of an international multi-stakeholder process to co-design and establish the first humanities-led sustainability science coalition in the UN family of organisations.

This last initiative achieved its objective when a new coalition, inaugurated in due course as BRIDGES, brought many international actors with significant capabilities for impact together with regional and local site-based stakeholders representing diverse communities and environments at risk. Led by UNESCO, the International Council for Philosophy and Human Sciences (CIPSH) and the Humanities for the Environment global network, this multi-stakeholder consultation and design process spanned four international workshops in 2019–20 that brought together more than forty organisational and institutional partners from around the world. What emerged from this process was a consensus vision for a new coalition, global in its reach and diverse in its array of participating organisations, connecting high-impact international actors in sustainability science, education, civil society, and the spheres of cultural policy and engagement, with smaller regional and territorial stakeholders tied to environments and communities on the front lines of global social and environmental change. This new sustainability science coalition was foreseen as being capable of complementing and working together with existing programmes at various levels internationally to promote the bridging of top-down and bottom-up initiatives,[11] serving as a focal point for humanities-anchored knowledge, learning, policy and action in the UN system, as well as in the sustainability domain more generally. The coalition was also envisaged as a force-multiplier in the generation and application of knowledge for transformative social change through its active promotion of genuinely transdisciplinary collaborations that bridge diverse disciplines, knowledge communities, stakeholders and sectors. A foundational principle emerging from this co-design process was the unanimous acknowledgement that the humanities, the arts and the qualitative social sciences, as well as indigenous and local knowledge communities, need to be central to the emerging programme, that vital knowledge communities either missing

or under-represented in the global change research landscape require meaningful articulation with core scientific domains, policy organs, governance structures and management systems involved in mainstream sustainability science.[12] In short, BRIDGES aims to harness the capabilities of higher education and research institutions to stimulate and guide vital transdisciplinary efforts to meet the challenges and goals of the UN's 2030 Agenda for Sustainable Development.

The need to strike a balance among stakeholders in the new programme's global South and Global North membership was also considered a priority (UNESCO 2019) on par with the need for trans-sectoral engagement of stakeholders and wider inter-/transdisciplinary integration of knowledge domains. With approximately forty organisations and institutions as charter members that were involved in the coalition's co-design, BRIDGES was formally approved by the Intergovernmental Council of the Management of Social Transformations (MOST) programme[13] on 31 March 2021 at the 15th Ordinary Session of the MOST Intergovernmental Council (UNESCO MOST 2021). The Inaugural General Assembly of the BRIDGES coalition was held on 24–5 May 2021. In 2022 the coalition launched its distributed international secretariat comprising five global hubs. Led by the UNESCO Social and Human Sciences Sector and the Flagship Hub at Arizona State University's Global Futures Laboratory (USA), further global hubs include the Centre for the Advancement of Scholarship at University of Pretoria (South Africa), the Climate Change and History Research Initiative (CCHRI) at Princeton University and the Human Ecodynamics Research Center at City University of New York (CUNY) leading a joint hub focused on historical approaches to climate change, resilience and risk (USA), the Faculty of Humanities and Education at University of Wales Trinity St David (UK) and The Club of Rome (Switzerland).

Humanities specialists represent just one of many broad communities of interest, knowledge and practice which don't have a specific role to play in the grand international performance now unfolding in the context of the UN's 2030 Agenda and its designated Decade of Action (2020–30) to deliver the Sustainable Development Goals (SDGs). Like many other specialised communities and groups of shared identity – diplomats, artists, lawyers, activists, journalists, medical professionals or teachers – humanities' specialists may however have a great many unspecific roles to play. However, there is much more potentially to be gained from organised forms of engagement in social-ecological or environmental knowledge assessments in the context of the Intergovernmental Panel on Climate Change (IPCC) or the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem services (IPBES), or even more specifically in diverse organised efforts to achieve the SDGs.[14]

Clearly the SDGs have their limitations, and these naturally reflect the structural omissions of the multi-stakeholder processes that contributed to their very framing and formulation to begin with. Their metrics, it can certainly be argued, are manifestly flawed in their normative reliance on technocratic modalities, influential international institutions, regional imbalances of power, and global structures of commerce, wealth and diplomacy that disproportionately favour the Global North, the West and so-called developed nations and economies largely dominated by neoliberal elites. However, to get hung up on the limitations of the SDGs to the point of self-exclusion from their unfolding processes and impacts (in both widescale and targeted contexts) is a poor answer to the exclusions that may have contributed to their imperfect formulation in the first place. Whatever their imperfections, the SDGs do embrace a utopian vision of the future world that rests not on survival but on flourishing.

For better or worse, the SDGs are perhaps the best intergovernmental tools the world now has to mobilise energies and resources at significant scales within a commonly defined and agreed-upon framework towards achievement of sustainable societies globally. A much better answer than to stay out of the fray may be to engage and improve upon the imperfect indices now codified in the SDGs' seventeen goals, 169 targets and 230+ indicators. Yet if humanities specialists don't show up and demand a place at the table among scientists and technocrats, politicians, bankers and corporate leaders whose places have already been set, then a tremendous store of wisdom and expertise will be withheld from what may well end up being one of the greatest social, ecological and economic experiments of the twenty-first century. The very interactions and processes that could gain most from the expertise of historians, philosophers, linguists, ethicists or theorists in aesthetics, learning, race or gender may not have the benefit of the state of the art in these crucial knowledge domains if humanities specialists and their disciplinary communities do not engage in the science-policy interface. Compared to many scientific and technical fields, the domain of the humanities does not have a particularly deep or long history of engaging in this particular form of applied work directed towards meeting societal challenges. Developing pathways and structures to support this kind of applied role requires bridge-building and knocking down of walls that are apt to run up against the incentive structures and even the funding structures of our institutions of higher learning and research.

We do not mean to suggest that such is the only way forward. System-transforming potentialities can also be realised in different revolutionary forms of collective political mobilisation, resistance or even acts of subversion and civil disobedience. The environmental humanities engagement with policy-making can and does occur at many levels and in many contexts from local to global, as many actors in the field aim to challenge stereotypical understandings of the 'political'. For more radical contingents in the Environmental Humanities everything is political precisely in contrast to the oft-perceived apolitical approach that state authorities or technocrats may sometimes claim to have in relation to the socio-ecological crises and their 'management'. The political dimensions of some scholar-practitioners are not directed only to rarified theoretical outputs on the one hand, or to an applied role in the science/policy modalities of established intergovernmental structures on the other. Environmental politics can also be enacted in forms and arenas very close to the lives of ordinary community members, for example in/by municipal councils who make local polities, or in different forms of policy support, opposition or advisement, in grass-roots associations and initiatives. Environmental Humanities scholars often engage with environmental policy or politically charged questions in such contexts. The Environmental Humanities Laboratory in Stockholm has been especially active on this line of intervention, which bridges environmental humanities and political ecology. The Occupy Climate Change! project, for instance, has deliberately shifted the focus from intergovernmental agreements to municipalities and grass-roots politics, thereby engaging the Environmental Humanities scholars directly with political actors. An urban gardening project can also be a way of being politically engaged in ways that touch people's lives at home or work. Transforming an abandoned factory into a space for cultural activities, learning or resistance is also inherently political just as it may help to build and mobilise communities or develop ties of social cohesion.

Comparable experiences that each of the co-authors has had in research environments at numerous learning sites throughout Europe (in Turkey, Sweden, Portugal, Iceland, France, Italy and the UK) indicate that such spaces and engagements are particularly valuable, enabling research and learning to meet concrete practices of politics, culture,

knowledge-building and social interaction in a world undergoing significant change. Whether in wider international contexts, or at local levels, valuable interpersonal, cross-cultural and learning dimensions often result in arenas where science and policy – or where environments, communities and politics – come into close interaction.

In this respect, the interdisciplinary and transdisciplinary practices of collective knowledge-building that have begun to be mobilised and enacted within the Environmental Humanities may provide a value model for other areas of the humanities as an integrated scholarly community whose strength lies in diversity, plurality and social as well as intellectual engagement. Much the same can be said of the undisciplined humanities and posthumanities, which as scholarly communities have strongly influenced – and in turn have been influenced by – the Environmental Humanities, even closely intersecting in areas such as human-animal studies, ecofeminist studies and other shared domains where disciplinary labels make less and less sense.

As coalescing communities of purpose defined by common interests and shared visions of social, ecological and economic justice, rather than by strict methods or exclusionary practices, each of these rich interdisciplinary and integrated scholarly fields may serve as useful models of broader engagement in applied social contexts for a humanities domain, undergoing significant challenges, and changes, in a European higher education and research sector that is undergoing its own radical transformation.

Notes

1. See Transforming Our World: The 2030 Agenda for Sustainable Development, United Nations A/RES/70/1.
2. Two examples are the aforementioned Global Challenges in Environmental Humanities series from Bloomsbury Academic, launching in 2022, and one of the latest peer-reviewed international journals to emerge in the field, *Ecocene: Cappadocia Journal of Environmental Humanities* (https://ecocene.kapadokya.edu.tr/index.php/ecocene), which launched in 2020. Extending far beyond the fields of ecocriticism and environmental history in their constitution, the editorial boards of these series comprise expertise from the disciplines of environmental archaeology, historical ecology, environmental sociology, human geography, cultural anthropology, continental philosophy, sustainability education, environmental justice, religion and environment studies, indigenous studies, political ecology and several other fields. Other well established Environmental Humanities journals that serve as key reference points in the field include *Resilience: A Journal of the Environmental Humanities* (http://www.resiliencejournal.org/) and *Environmental Humanities* (https://read.dukeupress.edu/environmental-humanities). There are far too many well-established peer-reviewed journals in the various tributary fields of scholarship noted above to list any here without potentially being arbitrary about their mention. Such disciplinary journals are also mainstays as publication fora in the field of the Environmental Humanities.
3. An extensive review can be found in O'Gorman et al. (2019).
4. https://www.centerforthehumanities.org/programming/climate-action-lab
5. From the Seed Box website: https://theseedbox.se/project/fossil-fuel-entanglements-remaking-places-subjects-and-ways-of-life/ (accessed 26 April 2022).
6. According to Duarte Cândido and Pappalardo (2021), 'the expression "insurgent museologies" refers to various emerging tendencies in the museology field, as expressions of rebellious movements, bottom-up initiatives, and problematization of the mainstream. This includes the search for new epistemologies, which can generate undisciplined and affected museologies, committed to highlighting invisible social narratives and groups.' For an experimentation of insurgent museology see Pappalardo 2021.

7. In material ecocriticism the terms 'storied', 'expressive' and 'agentic' are used interchangeably.
8. In his book *Break Up the Anthropocene* (2019) Steve Mentz devotes a short chapter (pp. 57–64) to providing a gloss on twenty-four neologisms that have been proposed as alternatives for the label of our present age, the Anthropocene (the Age of the Human), which has dominated popular scientific discourse on global environmental change for the past two decades since it was first popularised by atmospheric chemist Paul J. Crutzen in 2000, adopting the term from ecologist Eugene F. Stoermer.
9. Although agreeing on the theoretical fertility of this approach, the authors of this chapter maintain a differentiated degree of adherence to the radical distribution of material agencies.
10. Collective here refers to communities.
11. These include a number of well-established programmes led by Future Earth, the International Science Council, ICOMOS, the World Academy of Arts and Sciences, and The Club of Rome to name only some of the organisational and institutional partners, beyond the three founding partner organisations, that took part in most or all of these establishment workshops.
12. These core scientific domains have included environmental and health sciences, economics, various fields of technology development and engineering, among other Earth science and life science disciplines central to the field since its launch in the early 2000s in the wake of the UN's Millenium Assessment.
13. MOST is one of several international science programmes managed by UNESCO, and the only one based wholly in UNESCO's Social and Human Sciences sector.
14. For detailed and in some ways complementary approaches to the question of the Environmental Humanities in relation to international knowledge assessments, see Castree (2021) and Hartman (2020).

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