

# **Nature Matters: Diffracting a Keystone Concept of Environmental Education Research – Just for Kicks**

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## **Abstract**

As a keystone species the concept ‘nature’ plays a vital role in shaping our world. In this paper, we think with the material turn about the *concept* nature due to its significant performativity in its role within environmental education and research. How nature is conceived is played out on a massive scale as matter itself is morphed through conceptual processes. Therefore, we focus on the matter(ing) of conceptual abstraction, the physical effects – and affects – of thinking a thing into existence. We initiate a pluralistic thought experiment that purposefully diffracts nature into eight performances, to see what it *does*. The concept nature performs ecologically and enacts trophic cascades. This exploration highlights feats of racism, classism, androcentrism, colonialism, homogenization and mass extinction. What we are proposing is an environmental literacy that attends to what a concept is capable of, what a concept can do, and perhaps even what a concept can prevent, post-nature.

**Keywords:** Environmental Education Research; Nature; New materialisms; Diffraction; Post-nature.

## **Re-connections**

*‘A concept is a brick. It can be used to build a courthouse of reason. Or it can be thrown through the window.’* (Massumi in Deleuze and Guattari 2004, xiii)

In his 61st year on this earth, the man who calls himself Nimblewill Nomad left home and walked a very long way through the mountains [...] Then, he took another, even longer walk. And then another one. And then another. Soon, he had

given away almost all of his money and taken to walking almost year-round, roaming the post-industrial wilderness of North America in what he called “a desperate search for peace.” (Moore 2017, 1)

Robert Moor, the author of *On Trails: An Exploration*, joined Nimblewill Nomad for a few days of walking, garnering a few glimpses of a post-nature perspective.

The next night, we slept in a copse of gnarled oaks beside a graveyard, a shady grove carpeted with slender, rippling leaves. It was strangely lovely. Eberhart found them everywhere, these forgotten little shards of wilderness. The problem, he said, was that hikers tended to divide their lives into compartments: wilderness over here, civilization over there. “The walls that exist between each of these compartments are not there naturally,” he said. “We create them. The guy that has to stand there and look at Mount Olympus to find peace and quiet and solitude and meaning – life has escaped him totally!” (Moore 2017, 27)

Initially we might agree with Nimblewill’s Whiteheadian insight about the bifurcation of nature – ‘wilderness over here, civilization over there’. But look again and we see another slip into the Cartesian trap. It’s easy to do. The walls (in this case the wall between nature and culture) *are* there naturally because ‘we’ invented the concepts of bifurcations and dualisms and we are *of* this world. Human concepts are just as natural as a tree or a crisp packet. Conceptual abstractions are real, material, physical and they perform ecologically.

This paper is a playful attempt to unpack the multiplicity of the conceptual abstraction - *nature*. For we must have an idea of what nature ‘is’ if environmentalists, for example, are to ask people to ‘re-connect’ to ‘it’. Though, as will become clear, we are more interested in the

*becomings* or *doings* of various natures, rather than their ‘beings’ – designated by definitions. It is this political aspect of concepts – their acting in the world – that we wish to explore in environmental education research, rather than offering further historical or genealogical explorations of *nature*.

The concept of nature is very much alive – and mattering<sup>1</sup> – in environmental education research. A flick through this journal reveals authors who suggest that there is a ‘nature’ which is somehow apart from human produce. We don’t want to be accused of constructing a straw *man*; we know there are critical and inventive ways in which ‘nature’ – as well as ‘landscape’, ‘wilderness’ and ‘place’, for example – is being conceived and played within environmental education research and we will discuss some of these presently. However, ‘nature’ is also often described in simply ecological, biological, geological or atmospheric terms. Additionally, sometimes the term is not considered past its own use. For example, Braun and Dierkes (2017, 938) admit that straightforward usage is controversial as ‘there is no clear, universally accepted definition for the notion of nature connectedness’, yet their following literature review does not tackle this controversy. Instead they cite others who have also used ‘nature’ as axiomatic. Similarly, Typhina (2017) takes nature to be relatively unproblematic, presenting it matter-of-factly, as a thing to be experienced. To pick two instances is perhaps unfair as there are many examples in this and other journals that use the term ‘nature’ as a destination to be visited, experienced, and connected to. Measuring humans’ connectedness or relatedness to a romanticized version of nature is becoming commonplace. For example, there are now ‘scales’ to objectively measure just how related to nature you are, such as the ‘Connectedness to Nature Scale’ (CNS) (Mayer and Frantz 2004), the ‘Nature Relatedness Scale’ and the ‘Connectivity to Nature Scale’ (Selhub and Logan 2012, 228), and conferences to disseminate the almost always positive results of these scales, such as ‘Nature Connections...an interdisciplinary conference to examine routes to nature connectedness’ (Nature Connections 2015). Karen

Malone (2016), suggests that the emergence of a ‘children in nature’ movement, both in academic and educational circles and buoyed by the work of authors such as Richard Louv, relies on an ‘adult sentimentality’ of urban children’s loss of connection to ‘nature’ (also see Duhn, Malone and Tesar 2017, 1363). Malone (2016) draws on the work of Rautio (2013) to demonstrate a number of logical problems and anthropocentric assumptions in the view that children need to be more connected to nature: ‘(1) human societies used to be closer to nature, (2) our current way of life is unnatural or distant from nature, and (3) proximity to nature is a question of learning (and teaching)’ (Rautio 2013, 449). We would reassert another fundamental challenge, perhaps read as implicit in Rautio’s points by some readers: nature is a concept, not a place or thing in the sense of being an object.

The concept of a distinct nature is also at work when authors discuss ecopedagogy, ecopsychology, ecotherapy, ecojustice, and ecological literacy, for example. Terms that have an ‘eco’ designator suggest to the reader that what is being discussed is concerned with preserving/conserving/managing/saving/being healed by/learning about/acting for what seems to us to be an idea that *matters* - nature. Whilst we know that ‘eco’ comes from *oîkos* – Greek for home – and that ‘ecology’ seems to refer to relationships more than it does to ‘nature’, there is still a sense in which ‘eco’ concerns itself with the *other* in the form of the biological sphere drawing upon the hydrosphere, atmosphere and lithosphere – for some reason – however, the anthroposphere still seems largely detached. Ironically ‘home’ refers to the green/blue planet, rather than the ‘artificial’ world humans have built and inhabit. What of the ecology that sits between a fridge and its contents? Or the ecology of motorway roadsides with their fusion of cars, carrion and crows? The ecology of the electric grid, coal extraction, nuclear waste storage and UK/China post-Brexit relations? The ecology of stories? The ecology of percepts, affects and *concepts*? How do we educate for/with these environments? Should we? What does an environmental education without a ‘green’ version of nature look like? For, what does it *do* to

do environmental education research, as we think we must, without the romanticized story of nature? And what does it do not to do an ecology of concepts?

To this last point, we would say that the impact of omitting the mattering of concepts in the cogitations of environmental education research – and ecocriticism more broadly – leaves open the performance of the neglected cogitations themselves (i.e. what do they do?). Concepts perform, whether we pay attention to them or not. The performativity and materiality of concepts need explorers to challenge (un)knowable realms of vital materiality. Conceptual abstractions are not merely philosophical tools for engaging in cerebral flights of fancy, they are made of matter and matter is indeed a conceptual abstraction. ‘The meaning of a philosophical concept cannot be reduced to its semantic content, defined in abstraction from this process. There is a transformational aspect to the concept’s letting loose, by which it effectively overflows its own definition’ (Massumi 2010, 4). Therefore, concepts behave ecologically and produce trophic<sup>2</sup> cascades – although trophic *torrents* might be more apt due to the hierarchical linear cause-and-effect sequencing that ‘cascade’ implies. ‘[A] philosophical concept carries a surplus of meaning that is one with the transformative movement of its performative *force*’ (Massumi 2010, 4). It is to this *force* of matter, in the guise of concepts, that we must attend as an ethical imperative.

In this paper, we think with the material turn<sup>3</sup>, unpacking and introducing various romanticized environmental perceptions and queer(y)ing ‘critical’ positions in environmental education. There is, of course, not *one* critical position – as if critique were something that occurred from an objective stance outside of becoming involved with the problems at hand – what Haraway (1988) calls the ‘god trick.’ Each one of the natures we explore *is* a critical position, in relation to another position. For instance, the critical position taken up by Arne Naess, sometimes labelled as deep ecology, is deemed critical due to its criticism of shallow ecology for its evident anthropocentrism. However, a number of scholars (Morton, Braidotti,

de Vega, Cohen, for example) critique this critique, suggesting it is similarly anthropocentric due to its inherent Cartesian contradictions. These stances themselves can be critiqued from positions that question whether they are ontologically sound – this is not quite the type of critique we are hoping to perform here. There is another manner in which ‘critical’ is used in educational theory/research; towards uncovering the imbalance of power relations and injustices – again, whilst there are similarities in our approach, this is not solely the type of critique we are hoping to enact here. What we *are* moving towards is the understanding that we can’t step outside of politics (Latour 2004). Our critical position is what Maggie MacLure (2015) calls ‘the new materialist critique of critique,’ that is the understanding that rationalistic critique ‘arrests things – stitches them up, pins them down or closes them down, in the rage to expose error and the rush to pronounce judgement’ (101). Rather, new materialist approaches aim for creation and production. MacLure (2015) suggests an ‘immanent form of critique’ which is

able to follow, or sense, the multifarious connections and intensities that coalesce in events, rather than sniping from its particular dugout at other disciplines and paradigms. It must be oriented towards eventualities that cannot be foreseen, and where the usual privileges of human agency and the linearity of cause and effect are not in play. (105)

So, whilst the natures we offer do snipe at each other to a certain extent – and whilst they do reveal unjust power relations to a certain extent – they also create new, immanent<sup>4</sup> lines of nature, describing versions of nature beyond duality or privileged human agency. Following this immanent mode of critique further, we come to oppose the transcendentally<sup>5</sup> *placed*, static environmental concepts – wilderness, environment, landscape, nature – with immanent

versions – *enviroming*, *landscaping*, *naturing*. For now, it is the juxtaposition of different conceptions of nature which provides the creative lines that co-mingle with the reader (and with the writers) to produce the diffractive patterns. Our hope is that the reader considers their use of ‘nature’ in the practice of both research and pedagogy, so as to ponder the *effects* of their use of it. Donna Haraway (1997) infers that ‘diffraction can be a metaphor for another kind of critical consciousness, [...] one committed to making a difference and not to repeating the Sacred Image of Same’ (273). Haraway (1997, 2000) and Barad (2007) point out that thinking with a diffraction pattern is not an attempt to map the appearance of differences but rather the *effects* of where differences appear. And so, by paying attention to nature here, we imagine the diffractive effects of eight versions of nature as spilling over from the page. This is, with the hope that a difference might be made for the reader, in the process that occurs of the reader meeting different conceptions of nature at play in environmental education research and beyond: Nature 1 – scary nature; Nature 2 – scenic nature; Nature 3 – utopian nature; Nature 4 – scarier nature; Nature 5 – artificial nature; Nature 6 – affective nature; Nature 7 – conceptual nature; Nature 8 – abstract nature. It is this hope – that a difference might be made by exploring difference – that is the political drive of this paper. That is, the manner in which ontology, knowledge, and ethics are always already wrapped up with each other – what Barad (2007) calls ‘ethico-onto-epistemology.’ For us – in the writing of this paper – the matter of concern is the political mattering of the ontologically suffused concept *nature*.

Before we meet these eight versions of nature we wish to attend to its appropriation. And as matter is storied, as all things are, we will attempt to weave a narrative similar to that of the ancient Greeks – or Star Wars if you prefer – that always begins *in medias res*<sup>6</sup>...

#### **Episode IV: The Appropriation of Nature**

*A long time ago in a galaxy far, far away....*<sup>7</sup>

The world of nature, it is often said, is what lies ‘out there’. [...] Application of this logic forces an insistent dualism, between object and subject, the material and the ideal, operational and cognized, ‘etic’ and ‘emic.’ (Ingold 2000, 191)

Nature has evolved conceptually within the realm of science, through the *philosophical* work of Boyle, Bacon, Harvey, Descartes, Hooke and others, who have variously extended the concept of nature from a Greek and medieval organismic agent, to a concept of nature as mechanistic or as a set of laws guiding the operation of clockwork to be observed (Weinert 2004).

Due to the development of quantum physics, the double slit experiment and observations of entanglement and wave-particle duality, the concept of nature in the philosophy of science has moved from this view of the world as deterministic to a view where: ‘The basic indeterminacy in the atomic realm leads to a fundamental revision in the concept of Nature: Nature is probabilistic, not just our knowledge of Nature’ (Weinert 2004, 59). It is an enacted idea, a concept that is influenced by empirical observations. And yet these observations often have little to say about the fact that the concept itself occurs and that its implications manifest. They perform empirically, even as the concept changes. The concept nature itself literally *matters*.

Human Geography and Environmental History have well explored the conceptual construction of the environment, or nature, establishing its material fallout and the impossibility of considering it an unbiased element of study (Schama 1995; Castree and Braun 2001; Lorimer 2012). We cannot separate scientific observations and claims about nature from the socio-cultural constructions that guide our political interests (and *vice versa*), occasionally



serving as ‘instruments of power and domination’ (Castree and Braun 2001, 9). For instance in the context of the colonial European expansion overseas, the existence of a conception of a distinct ‘nature’ as opposed to civilization was ‘easily racialized and, in the guise of scientific racism, provided a rationale for European colonial rule over more ‘primitive’ cultures and peoples’ (Ginn and Demeritt 2008, 303). This perceived inferiority can be linked to myriad ‘minority’ groups by associating ‘them’ with that ‘thing’ – nature (Plumwood 2002). The Occidental bifurcation of nature supported arguments that some cultures remained primitive due to geographical determinism as well as romanticized ideas of the ‘noble savage’. Simon Schama (1995) describes how ‘The arcadian idyll, for example, seems just another pretty lie told by propertied aristocracies (from slave-owning Athens to slave-owning Virginia) to disguise the ecological [and cultural] consequences of their greed’ (12). Similarly the ‘received’ conception of wilderness, as unpopulated *terra nullius*, has been critiqued as a tool of androcentrism, racism, colonialism, and genocide (Callicott 2000); these are material consequences indeed. The way nature is conceptualized has played a principal role in historical fascism (Cutting 2016).

The appropriation of nature is evident in colonized landscapes all over the world, from Australia and America to India and Kenya. These ‘Teletubby Landscapes’ (McPhie, 2017) perform homogenizing atrocities, morphing once diverse environments into England’s new *Jerusalem*,<sup>8</sup> a ‘green and pleasant land’ that hides a more sinister Victorian conservatism. Now, as a derivative of the organic ‘biological’ invention, the concept nature arguably plays the most vital role in shaping our world...contributing to a(nother) mass extinction event. How nature is conceived is played out on a massive scale. Matter itself is morphed through conceptual processes. The physical effects of thinking a thing into existence has world changing ramifications.

## Episode V: Ecology without Nature

Concepts, then, *matter* in very literal ways. Recognizing the power of concepts, Timothy Morton has suggested that the term environmentalism is curiously similar to both sexism and racism in that it is immediately divisive, setting as it does one group of things against and above another. Next year it will be ten years since Morton (2007) published *Ecology Without Nature* in which he argues:

the very idea of “nature” which so many hold dear will have to wither away in an “ecological” state of human society. Strange as it may sound, the idea of nature is getting in the way of properly ecological forms of culture, philosophy, politics, and art. (1)

And, we hazard, education. Morton was implying that if nature is abridged to romantic versions of flora, fauna and perhaps a few other phenomena such as weather, water and earth, then our understanding (and experience) of the world will be less rich, less nuanced and potentially more damaging due to its monocultural oversimplification and the resulting behavior that it may produce. Since then, more recent versions of ecocriticism – the field of literary study concerned with the depiction of nature and the environment – have begun to move to embrace philosophies that attempt to think beyond the romanticized version of nature, becoming all the more aware of the material effects of the stories we tell. For instance, Cohen’s edited collection *Prismatic Ecology: Ecotheory beyond Green* is just such an attempt to expunge the lingering viridescence of (un)critical ‘bright green’ ecological writing. Drawing from Morton, Cohen (2013, xxii) argues that ‘bright green criticism emphasizes balance, the innate, the primal, landscapes with few people, macrosystems, the unrefined’ – in short, the supposed ‘critical’

position in environmental literature studies has reified the very nature that Morton urges us to think beyond. Cohen (2013, xxii) goes on:

In a green Arcadia what do we make of the airplane, graves, gamma rays, bacteria, invasive bamboo accidentally planted as an ornament, inorganic agency, relentless lunar pull, electronic realms, prehistoric flora lingering as plastic refuse, lost supercontinents, parasites, inorganic compounds that act like living creatures, species undergoing sudden change?

Fletcher (2017, 231) suggests that abandoning the conceptual category ‘nature’ ‘can actually provide a stronger basis for critique of environmental degradation than appeals to “nature,” which invites counter-critique that such degradation is produced by “natural” human inclinations’. This is similar to a position that we have taken previously, though we would distance ourselves from any statements of ‘natural’ human inclinations, rather stating that nature as conceived as whole would not be able to be escaped by anything, even by humans and their concepts, such as ‘nature’ (Clarke and Mcphie, 2014). In this sense, the variations and *multiple* natures are ‘natural’. However, arguments that we might better care for ‘the environment’ by dropping the concept of ‘nature’ leave open the question of environmental degradation itself, as a thing occurring to an environment that is separate from the human, i.e. if ‘nature’ is the label we apply to the things that should be conserved, upheld or connected to – and if this label is in flux – then environmental damage itself moves into flux. Payne (2016, 175) suggests that ‘the universalizing implications of homogenizing and conflating nature and culture, and their environments, and humans and nonhumans, for EE [Environmental Education] and ESD [Education for Sustainable Development] are profound—theoretically,

pedagogically, and practically.’ Where would the harm be located in an ecology without nature? What would there be to sustain or educate for?

Conceiving the world in terms of material – and materiality – allows researchers to think with different conceptions, different stories that *matter* different consequences. For research is a story and it does *matter* consequences. Like Cohen and Morton, there has occurred a concerted effort by scholars in recent years to ‘develop forms of ecological discourse that complicate, critique, historicize, or abandon the concept of nature while taking serious account of the agency of nonhuman beings and phenomena’ (Raine 2014, 103). Rather, there has never been a nature for us to overcome, damage, or even return to. Thinking with MacLure (2015), an *immanent* ecocriticism would aim to be productive of new natures. In what follows we play with nature as a concept to see what varying conceptions of nature *do* as physical phenomena that perform and *matter*, for nature is stubborn.

## **Episode VI: The Diffraction of Nature – Just for Kicks**

The following list of natures is not meant to state that there are only eight such versions of nature, we’re sure there are many, many more and they can never be simplified to a bounded number. It is merely a pluralistic ploy (for example, Loris Malaguzzi’s *Hundred Languages of Children* and Facebook’s 71 gender options) to highlight the shortcomings of reducing the concept ‘nature’ to just one or two things, objects with binary inferiors or *quiddities* – a thing’s *whatness* – when it is clearly many things to many people (or nothing to some). Of course we realize the contradiction inherent in numbering (and naming) them as such, and so for the record we would like to place all of these numbered natures ~~*sous-rature*~~<sup>9</sup>. Although they are conceptual abstractions, the different natures *do* different things. They work in different ways. We accept that this exploration is a little one-sided – towards the *Dionysian* – but there are far

more examples of the positive *Apollonian* effects of some versions of nature within environmental education discourse so we thought we'd employ a little positive discrimination, *just for kicks*. This was a term used by Deleuze and Guattari (2004) to demonstrate the importance of minor creative acts as movements towards an ethics of immanence.

For example, it is relatively easy to stop saying "I," but that does not mean that you have gotten away from the regime of subjectification; conversely, you can keep on saying "I," just for kicks, and already be in another regime in which personal pronouns function only as fictions. (152)

So, for the purposes of this paper, we employ the term 'just for kicks' as an experiment – a playfully political transgressive move – because we are already in another regime in which nature functions only as a fiction.

***Nature 1 – Scary Nature:*** Scary, useless or dangerous, inhabited only by wild animals, as in the *wildēornes* of the saga Beowulf. This nature belonged to the pre-picturesque/pre-romantic Western mind. In 1642 James Howell described the Alps as 'uncouth, huge, monstrous Excrescences of Nature, bearing nothing but craggy stones' (Thompson 2010, 20). 'In 1657 a dictionary still describes 'forest' as 'awful', 'gloomy', 'desolate', 'inhospitable' (Lemaire 1988, 62)' (cited in Egmond 2007, 15-16). Nature 1 destroyed the wolves and bears in the UK and attempted to create a more sterile urban, devoid of more ostensibly mobile diversities, such as wild mammals, insects and germs. This one *sanitized* the land. But Nature 1 still scares people today. Some don't see this nature as at all therapeutic or something *to connect* to, instead wanting to avoid the 'claustrophobia' 'darkness', 'insects' 'anyone lurking', 'getting buried', 'ghost stories', 'pedophiles', 'the Blair Witch' and leading one person to think that because of

‘fairytale, I didn’t know if there was anything out there and something could come and get me like a monster and stuff like, erm, like a man crossed with something...sort of an animal or some fairy quality’ (Milligan and Bingley 2007, 806-808). Koole and van den Berg (2005) showed how many people have biophobic reactions to (conceptually) ‘natural’ landscapes, associating ‘wilderness’ with death, and Milligan and Bingley (2007) found that whilst some participants found woodland restorative, others felt fearful or were repelled by it. Some environmental educators try to fight this concept of nature.

***Nature 2 – Scenic Nature:*** An ordered, neat, picturesque, specifically designed (perhaps by Gilpin or Capability Brown) formal nature, framed with a hint of human culture in the scene (a typical Teletubbies landscape). Nature 2 aesthetized (and anesthetized) productive landscapes (from food production to aesthetic production), as only the upper classes possessed unproductive land pre-industrialization. This one *civilized* the land. These elitist picturesque landscape preferences were born out of literature, art and land ownership as they reinforced the personal views and perceptions of its members as *the owners of nature* (Gillespie 2008). Today this nature draws visitors to Blenheim Palace and therapy seekers to Flatford Mill, the site of the Romantic artist Constable’s *The Hay Wain* (Barton, Hine and Pretty 2009), a painting ‘used to promote a timeless ideal of beauty and social order which belied exploitative labour relations, rural poverty and the political unrest that was sweeping the English countryside at the time [it was] painted’ (Hawkins, cited in Howard, Thompson and Waterton 2013, 3-4).

***Nature 3 – Utopian Nature:*** Type in the word ‘nature’ into any search engine images and you will see a plethora of Disneyfied landscapes. This is a romantically *idealized* nature: Green rolling hills, wild (but never *too* wild), ‘particular’ mammals, ‘particular’ flowers, a lake in front of some mountains, green leaved trees (usually deciduous, pictured in the summer), a

rainbow, a waterfall, blue sky with white clouds, etc. Yes, that's nature. Along with fresh air, bird song, stars and sweet smelling nectar, this is the sort of nature that people who say 'we must re-connect to nature' generally seem to mean. Cohen (2013) suggests that this sort of romanticized analysis 'often focuses on the destabilizing encroachment of industrialized society into wild spaces, the restorative and even ecstatic powers of unblemished landscapes, and the companionless dignity of nonhuman creatures' in which 'Woodlands, serene waterscapes, sublime vistas, and charismatic megafauna feature prominently' (xix-xx). With Nature 3 there is a 'utopian emphasis on homeostasis, order, and the implicit benevolence of an unexamined force labelled nature' (Cohen 2013, xxii). Morton (2010) suggests that this 'bright green' view peddles nature as 'affirmative, extraverted and masculine [...] sunny, straightforward, ableist, holistic, hearty, and 'healthy'' (16) or as Cohen (2013) posits, 'a purified place to which one travels rather than dwells always within: separate from the human, empty, foundationally pure' (xxi). This is the ecocriticism of deep ecology, for example, one of the aims of which is to 'reconnect humans with nature.'

The problem with this position is that, in flagrant contradiction with its explicitly stated aims, it promotes full-scale humanization of the environment. This strikes me as a regressive move, reminiscent of the sentimentality of the Romantic phases of European culture. I concur therefore with Val Plumwood's (1993, 2003) assessment that deep ecology misreads the earth-cosmos nexus and merely expands the structures of possessive egoism and self-interests to include non-human agents.

(Braidotti 2013, 85)

de Vega (n.d.) posits, 'If shallow ecology objectifies nature, deep ecology subjectifies nature, thus it is no less dualistic' (3), which is paradoxical as 'the more we venerate nature as the

place we need to appreciate and respect, the more we set up rules and principals [sic] that keep us separated from it' (4). It is not artifice that is the principal driver of mass extinction, it is nature, via this persistent *belief* in separation, the bifurcation of nature. 'Under this conception, nature is thought of as something pristine, pure, wild, and immediate; something that we can look at, sometimes touch, and almost always end up destroying' (de Vega n.d., 4). Ellison (2013) indicates that since the late 19<sup>th</sup> Century ecology has been dominated by a romantically harmonious notion of landscape which is the wrong sort of nature for an ecologist to study. This nature was born out of Nature 2 (Scenic Nature), the sublime, privileged Grand Tours and oxymoronic literature that combined horror with beauty (influenced by the 1681 book *A Sacred Theory of the Earth* by Thomas Burnet (MacFarlane 2003; Nicolson 1997; Schama 1995; Thompson 2010), which was read by influential progenitors of Nature 3, such as Addison, Dennis, Steele, Wharton, Young, Wordsworth and Coleridge (Nicolson 1997)). Nature 3 romanticized a wild nature. For the Romanticists, it became associated with the 'experience of God's Creation' and was 'the centre of spiritual and religious regeneration' (Egmond 2007, 16). This one *idealized* the land. This is the one that has performed feats of racism, genocide, androcentrism, colonialism, etc. (Callicott 2000, 24). 'For over a century, in countries like Kenya, indigenous peoples have been forcibly removed from, or denied access to, traditional territories because conservationists have argued that segregated 'wildlife parks' are required for species protection' (Castree and Braun 2001, 9). The World Bank estimates that between 1986 and 1996, about 3 million people were forced to move from forests, tribal land and other areas as a result of both development and conservation schemes (Vidal 2001), some of which 'involved the destruction of the resident indigenous peoples, and the problem is now growing more acute as conservationists press harder for governments to set aside 'natural' areas, which in reality have been lived on for generations' (Corry 2011, 211). It is not hard to find examples



of environmental education research that promote Nature 3, yet it may also be the nature that co-created the summer camps of the English fascist movement of the 1930s (Cutting 2016).

**Nature 4 – Scarier Nature:** Dog shit, slime mold, adrenal cancer, earthquakes, strychnine poison, sulphur dioxide, methane, piss, tsunamis, scorpions, rotting cabbage, snot, bile, viruses, the Black Death, phlegm, malaria, weeds, sharks, breast cancer, floods, a flower that smells of rotting meat, rotting meat, puke, forest fires, etc. They're all nature too. This nature is perhaps more reminiscent of Nature 1 (Scary Nature) conceptually conditioned by history and socio-economic status. They are generally labelled as 'natural' or 'nature' but aren't usually thought of when picturing *scenic* landscapes and cuddly mammals. Do you still wish to *re-connect to nature*, re-connect to shit and cancer? Nature 4 is an ill thought of nature and is often discarded, feared, killed, eradicated or 'weeded' out (often in response to Nature 2 and sometimes 3). Arguably 'climate change' is the most cited example of Nature 4 in environmental education literature. Although increasingly viewed as '*man* made' it is generally not conceived in the same way as a car or a house (see Nature 5), or even human waste. It is more like a devastating avalanche encouraged by a skier, for whatever reason.

**Nature 5 – Artificial Nature:** A James Bond watch, pickled onion flavour Monster Munch crisps, false teeth, a plastic lawn, a tube of toothpaste, books, computers, stilettos, scissors, electric wire, cars, a guitar, a knife, a plastic flower, etc. They're nature too, only many people in the West, perhaps *especially* environmentalists, ecotherapists and deep ecologists, think not, mostly because these things (what might be labelled as 'artificial') are the produce of humans, even though those same people might argue that humans are nature too. Somewhere along their thought patterns, somehow human produce has become separated from the existing universe. A form of transcendence has invaded the earth. Nature 5 is not thought of as nature to many

people, as already mentioned it is of human produce. But if humans are nature too then surely everything we produce is *of* nature (the material, force and energy of the world/universe), so at what point does it become ‘not nature’ or ‘unnatural’? *In our heads?* Some environmental education researchers are working to overcome this problem. For instance, Nature 5 might be occurring in Rautio, Hohti, Leinonen and Tammi’s (2017) work, where the researcher notes:

In addition to me and the children ‘the urban’ and arguably ‘the nature’ took part and generated each other as green containers, crisscrossing pathways, roads, compost piles, electronics, tyres, cardboard, glass, descending darkness, fluorescent lights, extreme cold, birds and rats and heavy machinery moving around discarded materials from 300,000 people. (1380)

New versions of Nature 5 are co-emerging as we write. YouTube viral videos, twitter storms, digital warfare, real fake news websites and genuine alternative news organizations, online journal access and academic social media sites. The digital age encourages an in-depth access to a topological, intra-relational nature that developed with language, writing, and the printing press, and is now becoming in larger scales and quicker speeds due to the digital era. Like a bat monitor that extends our sensory apparatus to be allowed into a privileged noctillionine epistemology, the internet is a body extended and distributed all over the world (and beyond). This is much deeper than the shallowness of deep ecology. How much ‘deeper’ into nature can we go whilst at the same time becoming more diffractive to the inequitable consequences/effects that ‘some’ of this newly emerging nature seem to enact?

***Nature 6 – Affective Nature:*** A tear, a frown, a whisper, a tender touch, an annoying cough, the word *cunt* (this word has a particularly strong force of encounter for an English language

culture – as it performs ecologically it sets off a trophic torrent of culturally instigated and highly gendered physiological effects...do you feel it?), a cheeky wink, a rousing speech, an uncanny atmosphere, the rush of a blush, the force of an erotic encounter, emotional elation, etc. These are nature too but are harder to define or *capture* as they are an affective nature, one examined under the lens of the *affective turn* perhaps (see Gregg and Seigworth 2010). Nature 6 can lead to marriage or a call to arms. It may be the nature at work in Gannon's (2017) exploration of educational encounters and McKenzie's (2017) contemplation of policy. For Harris (2014) studying affective experiences is more promising than promoting 'environmental' knowledge, though environmental educators have known this for a while (Russell and Oakley 2016).

***Nature 7 – Conceptual Nature:*** Free speech, 56, fascism, yellow, the alphabet, China, nature, culture, place, etc. These are nature too. They exist in the world, a world of (re)cycled materials, forces and energies. When 56 is written on a page it is perhaps ink (that is a material of the world) on paper (from a tree, even the romantic idealists may call this one nature!). If it is uttered from a mouth, that is breath (full of CO<sub>2</sub>, etc.). They are percepts as they are things that we can touch or see or hear, for example, but they are not the *idea* of 56, nature or yellow. Alfred North Whitehead (1919) suggested that 'Nature is that which we observe in perception through the senses' (1) but 'Thought about nature is different from the sense-perception of nature.' (2) Yet thought is itself a sense, as we can feel it, just a different kind of sense. What Whitehead is referring to here is what we would call the difference between nature as a concept (still a kind of percept, although less intense) and nature as a percept. The concept can influence the percept (and *vice versa*). Affect may also influence and be influenced by the other two in turn. When 56 is thought but not articulated it is a concept and yet still a percept. We might say it's not *really* real (*virtual?*), yet still real enough to enact a physical presence of some sort (in

the *actual*?). Nature 7 allows for many trophic torrents that perform in the world once they've been born. For example, the atomic bomb had a devastating physical consequence, but it was born of and deployed out of abstract concepts - mathematics, and a bunch of numbers. This is how nature works. Although a representational invention, it has physical consequences. But it can be deterritorialized and occupied! Nature 7 would include the 'theory' of any discipline, but theory is always already material both in its presence (concept/percept) and its affects. Environmental education theory and research methodology is thus always also a material practice, and by implication it is also pedagogical. It becomes habit. This realization points to the practical and political work that philosophy does. As Foucault said to Deleuze: 'theory does not express, translate, or serve to apply practice: it is practice. But it is local and regional, as you said, and not totalizing' (Foucault 1977, 208). Just like this paper and its iterations of nature, practice is being enacted in your reading of it and whatever affects this may produce.

**Nature 8 – Abstract Nature:** A unicorn, pixies, an Orc, fairies, God, Bambi, Shiva, ghosts, ray guns, the USS Enterprise, etc. They're all nature too! As ideas, these ones are abstract concepts, like the thought of 56 from Nature 7 (Conceptual Nature – the not *really* real), only more difficult to prove. For example, we can witness the effects of 56 when applied to atomic physics. Now it gets tricky as they are still percepts. A *picture* of a unicorn is a percept because it is empirical yet can we touch the unicorn itself? Unicorns are concepts, thoughts, and thoughts themselves are physical relational processes of the world of material, force and energy. They are not outside it. They are empirical in some way (electrical impulses, for example) and therefore ecological...natural. The *thought* of them exists as a percept in the world (a subtle real, a *conceptual percept*) but not the *actual* unicorn. However, unicorn's have the *potential* to impress a physical dent in the world just as perceptual as the hoof prints of a horse. But this is similar to 56 because they all start life as *conceptual percepts*. With the

example of 56, we can see its impact in the world, its impression. But then the abstract concept *God* has perhaps made even more of an inscription in the fabric of the world – enacting trophic torrents – due to its performativity. There are degrees of actuality and actualizing (or virtuality and virtualizing if you prefer) rather than the binary actual-virtual as ‘Purely actual objects do not exist’ (Deleuze, cited in Deleuze and Parnet 2002, 112). Their boundaries are topologically fluid and permeable as they flow and stretch interchangeably. This makes more sense to us due to the allowance of grey bits, dark matter that is perhaps more abundant than what is perceived. An affective realm may be actualized more fully and coherently if we look for *ecotones* – the bits in-between biomes – rather than definite boundaries between virtual and actual planes. The unicorn is also actual in this sense and not merely virtual. It’s just not *as* actual as a horse or narwhal which is much more obviously empirical and open to many more sensory apparatuses than the felt presence of a unicorn depending on the particular assemblage (as Jamie knew someone who interacted explicitly with an imaginary ‘My Little Pony’ – see, hear and talk to it as one might do a dog – whereas Jamie only ever perceives the abstract little pink pony conceptually). Don’t forget, it’s the ‘effects’ of conception that ‘matter’ more intensely in the world. So, for us, we’ve never actualized a god, it’s always been more towards the virtual end of the scale (not that there’s an end...or a scale) whereas for Jamie’s auntie, a (lovely) born again Christian, God has been actualized rather explicitly and has achieved a masculinized material status in its actual affects in/on/of the world. Nature 8 led to the crusades and various forms of religiously inspired terrorism but also some great speculative fiction. Nature 8 is akin to environmental education approaches that highlight the possibilities of speculation and fiction. In Nature 8 all the natures above (and more) – and their material effects – can be reinforced or new natures created. Nature 8 might be present in the work of Gough (e.g. 1993, 1994, 2008, 2010), Morgan (2010), and Rousell, Cutter-MacKenzie, and Foster (2017).

So, nature has many faces. It ‘can refer to stable substrata of brute matter’, can signal ‘generativity, fecundity, Isis or Aphrodite’ (Bennett 2010, 117). It is infused with bias and informed by propaganda. It can open doors to health or restrict access to livelihoods depending on a variety of cultural (in)equities. Now, what to do with nature?

## **Episode VII: What to do with nature?**

All of the Natures presented here are ecological processes and can indeed perform as they are enacted in the world. This leads to perceptions that force us to assume that either certain ecologically destructive actions won’t affect ‘us’ too much or that we can discard the non-romanticized nature, like pollution, in favour of a pristine wilderness ‘untrammelled by *man*’!

Some scholars (Morton, Zizek) disapprove of the term nature altogether and wish to eliminate it. Some scholars (Bryant) think it’s the concept ‘culture’ we must abolish rather than nature. Some (Latour, Haraway) wish to merge it to form ‘natureculture’. Cohen (2013) attributes nature with an ‘inorganic agency’ (xxii) where ‘Shadow itself is ecological’ (xix). He suggests that if nature was ‘refracted through the geological [...] our ethical connectedness to the nonhuman would become more tangible’ (Cohen 2015, 12).

Thinking from a flatter, immanent ontology, some scholars (de Vega, Deleuze, Cohen, us) wish to revolutionize it as the concept has its uses. But we must be wary of how we attempt to (re)present it. For how can we justify using a concept that has the potential to perform atrocities? And even if we do excuse the terms of possible oppression, how can we use them as a counter measure to revive or free-up alternative, less problematic meanings? ‘How then to write about young people engaging in just such ‘sacred spaces’, like woods and moorlands, without resorting to reified notions of nature’ (Quinn 2013, 738)? Quinn (2013) has ‘considered coining the term ‘open nature’, which could be helpful in conveying a sense of forests and

moorlands, but negatively would serve to sub-divide nature in a binary way’ and so decides to leave it to other scholars: ‘Ultimately, finding a solution to this philosophical problem of naming is not within the scope of this article’ (739). But we could wrestle with it a little as there are, as always, alternatives to nature...

### **Episode VIII: Environing**

The term ‘environment’ has become a noun out of the verb ‘environ’ + ment. The ‘Oxford International Dictionary of the English Language’ (Little, et al. 1957, 619) provides one definition of ‘environ’ as ‘to surround’, ‘envelop’ or ‘enclose.’ But to surround or envelop *what* (and indeed *when*)? This definition is undeniably separationist if we assume that it is *we* or other organisms who are surrounded. This bifurcation of nature is the result of a transcendent ontology. Perhaps we must look to non-anthropocentric, flatter ontologies for our conceptual approaches to the nature of our environments. How, then, might it look from an immanent perspective? The 1647 definition, ‘*to go round in a circle*’ (Little, et al. 1957, 619, emphasis added) is perhaps more appropriate to the *condition of a thing* (and is one that best applies to Ingold’s (2000, 2007, 2011) lines of living in the world). For example, ‘to go round’ implies movement *along* rather than an emic-etic split (an *in* and an *out*). The concept ‘place’, in place-based and place-responsive pedagogy, for example, can also perform romantically if conceived of as a static environment, bound within imaginary borders. Ingold (2011, 148) states that ‘we tend to identify traces of the circumambulatory movements that bring a place into being as boundaries that demarcate the place from its surrounding space,’ as ‘the pathways or trails *along* which movement proceeds are perceived as limits *within* which it is contained [...] turning the ‘way through’ of the trail into the containment of the place-in-space.’

[H]uman existence is not fundamentally place-*bound*, as Christopher Tilley (2004: 25) maintains, but place-*binding*. It unfolds not in places but along paths. Proceeding along a path, every inhabitant lays a trail. Where inhabitants meet, trails are entwined, as the life of each becomes bound up with the other. Every entwining is a knot, and the more that lifelines are entwined, the greater the density of the knot. (Ingold 2011, 148)

In this way, and developing Ingold's reasoning further, we would say that we are not *in* spaces or places, nor *on* or *along* paths, rather, we *are* the paths themselves in their continual *environing*. Therefore, the 1603 definition of 'environment' possibly serves our own purposes best when attempting to find a suitable term that describes *what it is* that we are *in* and/or *of*: 'The action of enviring' (Little, et al. 1957, 619). Hence, environment is an *action*, something we *do* and are *of* rather than something we are encased *in*. Environment is something that is continually *becoming* and we are *of* that process. One might say, then, that we are living lines of enviring. The 1827 version, 'That which environs; *esp.* the conditions or influences under which any person or thing lives or is developed' (Little, et al. 1957, 619) is also useful due to its emphasis on movement and development as opposed to stasis and separation.

### **Episode IX: Landscaping**

*'the landscape thinks itself in me . . . and I am its consciousness.'* (Cezanne, cited in Wylie 2007, 2)



Landscape is not a fixed scene to be ‘gazed upon’ by an image capturing spectator (through a lens) that catches and then frames a representation of it. In recent literature landscape has started to become more mobile once again.

For Wylie in particular, this shift to ‘landscaping’, [...] turns the word from a noun into a more rhythmic and mobile action verb [...] Body and landscape thus become recursively intertwined, both constitutive and constituting, and always in a process of (re)formation. Indeed, they become, to borrow from Thrift and Dewsbury (2000: 415), extensions of the body and mind, and vice versa. (Waterton 2013, 70)

Rather like Andy Goldsworthy’s ‘taking a wall for a walk’ or Paul Klee’s ‘taking a line for a walk’, Cumbrian poet Norman Nicholson’s (1977) poem ‘*Wall*’ emphasizes the animacy of what are normally considered inanimate objects in the landscape, illuminating how ‘A wall walks slowly’ and ‘Is always on the move.’ Nicholson had a keen eye for movement and saw the Cumbrian landscape in ways that the romantic poets, such as Wordsworth and Coleridge seemed to omit. For Nicholson’s artistic working class gaze, the landscape of the Lake District wasn’t merely a romanticized scenic nature for an elite clientele: ‘It is futile to assess such country in terms of views. [...] it measures the landscape from the borders of an imaginary picture-frame; it reduces like to a post-card’, as for him ‘it is also the man-made scree beside the quarries; and whitewash on the Copper Mines Hostel, a stone playing ducks & drakes on Levers-Water, making the black tarn throw up waves like a magicians’ steel rings’ (Nicholson 1977, 33-34). We might call this more mobile landscape, *landsceppan* (Ingold 2011), *landscaping* (Wylie 2007), *environing* or just *life*.

## **Episode X: Shelley’s Romantic (re)visions**

In the book 'Romantic Revisions' (Brinkley and Hanley 1992), Brinkley (1992) examined the Romantic poet Shelley's notebook where he drafted a copy of his poem 'Mont Blanc.' Rather than explain the meaning of the finished and polished poem, Brinkley explored the spaces between the words, the omissions and the words placed under erasure by Shelley himself, the words that Shelley changed his mind about including in the finished product. The poem, Brinkley (1992) writes, seemed 'to be structured by the breaks in composition' as 'much of 'Mont Blanc' was inspired as it was composed – by intervals of thwarted writing' (243). In this poem, Shelley originally wrote '~~In daylight thoughts, bright or obscure~~ / In day – the ~~stream of various thoughts~~ [eternal] universe of things / Flows thro the mind ~~reflecting rolls & rolls~~ its rapid waves' later changing it to, 'In day – the [eternal] universe of things / Flows thro the mind & rolls its rapid waves' (Brinkley 1992, 247). These reworkings, Brinkley writes, 'articulate a radical epistemology in which *things* – *and not their representations* – are said to flow through the mind' (1992, 247, emphasis added). Thus, nature is not conceptually separated as a reflection, representation or image. It is neither objectified nor subjectified within this revision. The emic-etic split is dissolved. This is a non-representational philosophy, a philosophy of immanence and vital materiality. It is a radical onto-epistemology which rejects the Freudian *tripartite psyche*, the Cartesian soul which operates a mechanical body from within the confines of the human pineal gland or the Kantian subject as a reflective self. Unfortunately, the romantic poets didn't utilize the same thinking when it came to human produce, falling straight back into the Cartesian well. These *things* – that flow through the mind – are not only majestic mountains and fresh air, they are also crisp packets and mobile phones (not that Shelley would have heard of such things).

As Spirn (1998) clearly points out, 'Humans are not the sole authors of landscape.' (17) The volcanic processes (flows of material, force and energy) that metamorphose rock from one

state into another are similar processes to those that metamorphose a mountain into a shopping centre. 'Intention', 'agency' or 'will to act' follow the same complex co-emergences as the rest of the material fluxes that continually transform the planet. Concepts then, such as nature, are agential as well as ecological.

## **Episode XI: The Ecology of Nature**

Concepts – as physical processes – perform ecologically. Depending on the diversity of their impact, they have the ability to capture matter and slow down energy dissipation over time if they display minimal or low entropy (like an old growth forest where multiple species have evolved with and adapted to each other over time) or the opposite if they display maximal or high entropy (like a newly concreted car park or a volcanic eruption). Similar to capitalism, the concept 'nature' is a keystone species – it has disproportionately large effects in the world considering its seemingly discreet material nature as a conceptual abstraction – but in many of its guises displays maximal entropy. This is a problematic combination due to the trophic torrents that are produced as a result often leading to eutrophic<sup>10</sup> and inequitable homogenized monocultures – although the effects of some other versions of nature can also lead to inequitable homogenized monocultures as a result of oligotrophic<sup>11</sup> exhaustion. We have exemplified a few of these torrents in episode VII (we'll let *you* decide which ones are oligotrophic and which are eutrophic).

It may not be an unusual practice to talk about concepts using an ecological patois if discussed metaphorically but our intention here is very literal – we are exploring the physical, nutritional and relational properties of a concept. To answer the question of why it may sound strange describing concepts physically or nutritionally, we must recognize what we've just done. We've *ennatured culture*. We've simply extended what is usually reserved for the field

of ecology to include phenomena from human culture - thought. We've dared to imagine that humans and human produce are also *of* this world and as such perform ecologically, just as much as flora, fauna and myriad other physical processes. We could just as easily have *encultured nature* by personifying the environment<sup>12</sup> – as employed by animist ontologies. Both are practices of rectifying the bifurcation of nature and making more permeable the Cartesian barrier that was extended during the Enlightenment. Weaving these non-dualistic perspectives together could be an example of what Bartlett, Marshall and Marshall (2012) calls 'two-eyed seeing' – the integration of 'indigenous and mainstream knowledges within science educational curricula' (331). This is a pluralistic experiment that could prove beneficial regarding socio-environmental equity.

## **Episode XII: Post-Nature – *Naturing* or *environing* education**

Let us be clear, we are no fans of mass extinction due to an (perhaps misplaced) empathy with the current epoch. We are certainly no fans of multispecies suffering. And we are no fans of desertification, inequity and homogeneity, of loss and misery. But we feel stultified by simplistic, or romantic environmental discourse and research, especially when there is a world of (immanent) critical environmental thought occurring just a journal away. Rather than suggesting anyone 'reconnect' with nature, as an endeavour of environmental education, we instead propose the idea of playing with nature, as a concept with learners. This can be conceived as a process of *naturing* or as *environing* education. We cannot hope for people to reconnect to nature – as there is no such ideal state – but we can hope that people consider nature as a material concept that can be experimented with in the process of concept creation. de Freitas and Palmer (2016, 1220) suggest thinking of concepts as playmates:

this way of thinking of concepts as flexible and amusing playmates participating in children's explorative investigations is not essentialist or normative, but is rather an ongoing intervention that is never the same but differs according to the situation. The concept operates differently and becomes different depending on the circumstances of each event.

In this way we can experiment with how concepts, namely nature, come to matter. Rather than attempting to 'mush' together culture and nature, or overcome Cartesian dualism with a piece of sticky tape holding the subject and object together in 'interaction' or 'connection', we can instead realize that concepts are performative through our specific intra-actions and story-telling of the world. Karen Barad (2003) suggests that the realization that concepts come to matter has paradigm changing implications for the dominant view of perceiving humans as subjects outside of their objects of observation. Boundaries, according to Barad, are created in the agential intra-actions of material-discursive events. So, there is a sense in which the process of *naturing*, of creating new concepts of nature, is in effect a mode of becoming *of* the world. In this respect it just might be the ~~connection~~ that many wish to attain.

In ethical terms, Deleuze and Guattari argue that concept making is a political and revolutionary act, arguing that reflection and communication only get us so far:

We do not lack communication. On the contrary, we have too much of it. We lack creation. *We lack resistance to the present.* The creation of concepts in itself calls for a future form, for a new earth and people that do not yet exist. Europeanization does not constitute a becoming but merely the history of capitalism, which prevents the becoming of subjected peoples. (Deleuze and Guattari 1994, 108, cited in Peters 2004, 224)

And so, according to Peters (2004), the future of philosophy ‘is the role of the philosopher as physician, as the physician of culture, ‘an inventor of new immanent modes of existence’ (Deleuze & Guattari, 1994: 113). In philosophy of education these categories, these becomings have an easy resonance’ (224).

We are interested in the type of experiments that allow us, and our learners, to become philosopher physicians, critically playing with the everyday concepts we pick up in literature and our daily lives to literally create new material-conceptual worlds. But we should also take care when conceptualizing nature. As Cutting (2016, 112) notes, educational approaches that claim to ‘encourage a deeper emotional engagement with the natural environment may not necessarily promote liberal thought, because while there is nothing wrong with promoting a love of the countryside, how students come to conceptualize this relationship is critical’. With this article we hope we have shown how critical the endeavor of creating concepts of nature can be. We have played with nature as a concept, to see what different iterations do. Nature 1 – scary nature – sanitized the land; Nature 2 – scenic nature – civilized the land; Nature 3 – utopian nature – idealized the land and created a romanticized, harmonious, Apollonian and privileged green environment; Nature 4 – scarier nature – weeded out unwanted nature and turned a blind eye to the Dionysian inaeesthetic; Nature 5 – artificial nature – created a conceptual nature-culture bifurcation; Nature 6 – affective nature – emotionalized the world; Nature 7 – conceptual nature – and Nature 8 – abstract nature – ecologized thought to create monsters.

We have exposed the agential ecology of a concept and followed the trophic torrents left in its wake. What we are proposing is an environmental literacy that attends to what a concept is capable of, what a concept can do, and perhaps even what a concept can prevent, *post-nature*.

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## **Biographical notes**

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## **References**

Barad, K. 2003. Posthumanist performativity: Toward an understanding of how matter comes to matter. *Signs: Journal of women in culture and society*, 28 (3), 801-831.

- Barad, K. 2007. *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Durham and London: Duke University Press.
- Bartlett, C. Marshall, M. and Marshall, A. 2012. Two-Eyed Seeing and other lessons learned within a co-learning journey of bringing together indigenous and mainstream knowledges and ways of knowing. *Journal of Environmental Studies and Sciences*, 2, 331-340. DOI 10.1007/s13412-012-0086-8.
- Barton, J., Hine, R., and Pretty, J. 2009. The health benefits of walking in greenspaces of high natural and heritage value. *Journal of Integrative Environmental Sciences*, 6 (4), 261-278.
- Bennett, J. 2010. *Vibrant Matter: a political ecology of things*. Durham and London: Duke University Press.
- Braidotti, R. 2013. *The Posthuman*. Cambridge, UK and Malden, US: Polity Press.
- Braun, T., and Dierkes, P. 2017. Connecting students to nature—how intensity of nature experience and student age influence the success of outdoor education programs. *Environmental Education Research*, 23 (7), 937-949.
- Brinkley, R. 1992. Spaces Between Words: Writing *Mont Blanc*. In R. Brinkley and K. Hanley (eds.), *Romantic Revisions*, 243-267. Cambridge, UK: Cambridge University Press.
- Brinkley, R. and Hanley, K. 1992. *Romantic Revisions*. Cambridge, UK: Cambridge University Press.
- Callicott, J. B. 2000. Contemporary Criticisms of the Received Wilderness Idea. In D. N. Cole, S. F. McCool, W. A. Freimund, and J. O'Loughlin (eds.), *Wilderness Science in a Time of Change, Vol 1: Changing Perspectives and Future Directions*, 24-31. Ogden, Utah: U. S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.



- Castree, N., and Braun, B. 2001. *Social nature theory, practice, and politics*. London: Blackwell.
- Clarke, D. A., and Mcphie, J. 2014. Becoming animate in education: Immanent materiality and outdoor learning for sustainability. *Journal of Adventure Education & Outdoor Learning*, 14 (3), 198-216.
- Cohen, J. J. 2013. Introduction: Ecology's Rainbow. In J. J. Cohen (ed.) *Prismatic Ecology: Ecotheory beyond Green*, xv-xxxv. Minneapolis and London: University of Minnesota Press.
- Cohen, J. J. 2015. *Stone: An Ecology of the Inhuman*. Minneapolis and London: University of Minnesota Press.
- Corry, S. 2011. *Tribal Peoples for Tomorrow's World*. Cookhill, Worcestershire, UK: Freeman Press.
- Cutting, R. 2016. Reflections on outdoor education and English 'Indigenous Organic Fascism' in the 1930s. *Journal of Adventure Education and Outdoor Learning*, 16 (2), 105-116.
- de Freitas, E., and Palmer, A. 2016. How scientific concepts come to matter in early childhood curriculum: rethinking the concept of force. *Cultural Studies of Science Education*, 11 (4), 1201-1222.
- de Vega, E. P. n.d.. Thinking the Ecological Present.  
[http://www.academia.edu/2964186/Thinking\\_The\\_Ecological\\_Present](http://www.academia.edu/2964186/Thinking_The_Ecological_Present)
- Deleuze, G., and Guattari, F. 1994. *What is Philosophy?* (Trans. G. Burchell and H. Tomlinson). London, UK: Verso.
- Deleuze, G., and Guattari, F. 2004. *A Thousand Plateaus: Capitalism and Schizophrenia*. (Trans. B. Massumi). London, UK: Continuum.

- Deleuze, G., and Parnet, C. 2002. *Dialogues II* (Trans. H. Tomlinson and B. Habberjam). New York: Columbia University Press.
- Duhn, I., Malone, K., and Tesar, M. 2017. Troubling the intersections of urban/nature/childhood in environmental education. *Environmental Education Research*, 23 (10), 1357-1368. DOI: 10.1080/13504622.2017.1390884
- Egmond, T. V. 2007. *Understanding Western Tourists in Developing Countries*. Oxfordshire, UK and Cambridge, USA: CAB International.
- Ellison, A. M. 2013. The suffocating embrace of landscape and the picturesque conditioning of ecology. *Landscape Journal*, 32 (1): 79-94. DOI:10.3368/lj.32.1.79.
- Fletcher, R. 2017. Connection with nature is an oxymoron: A political ecology of “nature-deficit disorder”. *The Journal of Environmental Education*, 48 (4), 226-233.
- Foucault, M. 1977. Intellectuals and power: a conversation between Michel Foucault and Giles Deleuze, in: D. Bouchard (ed.), *Language, Counter-memory, Practice: selected essays and interviews by Michel Foucault*. Oxford: Basil Blackwell.
- Gannon, S. 2017. Saving squawk? Animal and human entanglement at the edge of the lagoon. *Environmental Education Research*, 23 (1), 91-110.
- Gillespie, G. 2008. *Hunting for Empire: Narratives of Sport in Rupert's Land, 1840-70*. UBC Press.
- Ginn, F., and Demeritt, D. 2010. Nature. In S. L. Holloway, S. P. Rice, G. Valentine, and N. Clifford (eds.), *Key concepts in geography* (2nd ed., 300–311). London: Sage.
- Gough, N. 1993. Environmental education, narrative complexity and postmodern science/fiction. *International Journal of Science Education*, 15 (5), 607-625.
- Gough, N. 1994. Playing at catastrophe: ecopolitical education after poststructuralism. *Educational Theory*, 44 (2), 189-210.

- Gough, N. 2008. Narrative experiments and imaginative inquiry. *South African Journal of Education*, 28 (3), 335-349.
- Gough, N. 2010. Performing imaginative inquiry: narrative experiments and rhizosemiotic play. *Imagination in educational theory and practice: A many-sided vision*, 42-60.
- Gregg, M., and Seigworth, G. (eds.). 2010. *The affect theory reader*. Durham, NC: Duke University Press.
- Haraway, D. J. 1988. Situated knowledges: The science question in feminism and the privilege of partial perspective. *Feminist studies*, 14 (3), 575-599.
- Haraway, D. J. 1997.
- Modest\_Witness@Second\_Millennium.FemaleMan\_Meets\_OncoMouse: Feminism and Technoscience*. New York: Routledge.
- Haraway, D. J. 2000. *How Like a Leaf: An Interview with Thyrza Nichols Goodeve*. London and New York: Routledge.
- Harris, L. M. 2014. Imaginative geographies of green: difference, postcoloniality, and affect in environmental narratives in contemporary Turkey. *Annals of the Association of American Geographers*, 104 (4), 801-815.
- Howard, P., Thompson, I. and Waterton, E. (Eds.) 2013. *The Routledge Companion to Landscape Studies*. London and New York: Routledge.
- Ingold, T. 2000. *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*. Oxon: Routledge.
- Ingold, T. 2007. *Lines: A Brief History*. Oxon: Routledge.
- Ingold, T. 2011. *Being Alive: Essays on Movement, Knowledge and Description*. Oxon: Routledge.
- Latour, B. 2004. Why has critique run out of steam? From matters of fact to matters of concern. *Critical inquiry*, 30 (2), 225-248.

- Little, W., Fowler, H. W., Coulson, J. and Onion, C. T. 1957. *The Oxford International Dictionary of the English Language (Unabridged)*. Toronto: Leland Publishing Company, Ltd.
- Lorimer, J. 2012. Multinatural geographies for the Anthropocene. *Progress in Human Geography*, 36 (5), 593-612.
- MacFarlane, R. 2003. *Mountains of the Mind: A History of a Fascination*. London: Granta Publications.
- MacLure, M. 2015. The New Materialisms: A Thorn in the Flesh of Critical Qualitative Inquiry? In G. S. Cannella, M. S. Pérez, and P. A. Pasque (eds.), *Critical Qualitative Inquiry*, 93-112. Walnut Creek, CA: Left Coast Press.
- Malone, K. 2016. Reconsidering children's encounters with nature and place using posthumanism. *Australian Journal of Environmental Education*, 32 (1), 42-56.
- Massumi, B. 2010. What Concepts Do: Preface to the Chinese Translation of A Thousand Plateaus. *Deleuze Studies*, 4 (1), 1-15.
- Mayer, F. S. and Frantz, C. M. 2004. The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology*, 24 (4), 503-515.
- McKenzie, M. 2017. Affect theory and policy mobility: challenges and possibilities for critical policy research. *Critical Studies in Education*, 58 (2), 187-204.
- Mcphie, J. 2017. Embodied walls and extended skins: Exploring the distribution of mental health through tattoos and graffiti. In S. Awad & B. Wagoner (eds.) *Street Art of Resistance*, Palgrave Macmillan Series on Culture and Creativity.
- Milligan, C., and Bingley, A. 2007. Restorative places or scary spaces? The impact of woodland on the mental well-being of young adults. *Health & place*, 13 (4), 799-811.

- Moore, R. 2017. The man who went on a hike – and never stopped walking. *The Guardian*, July 3. <https://www.theguardian.com/world/2017/jul/03/hiking-walking-nimblewill-nomad-mj-eberhart>
- Morgan, A. 2010. The Lord of the Rings—a mythos applicable in unsustainable times? *Environmental Education Research*, 16 (3-4), 383-399.
- Morton, T. 2007. *Ecology without nature: Rethinking environmental aesthetics*. London, UK: Harvard University Press.
- Nature Connections. 2015. *Nature Connections 2015: An interdisciplinary conference to examine routes to nature connectedness*. College of Life and Natural Sciences, University of Derby, 26/03/15.  
<http://www.derby.ac.uk/enterprise/centre/events/nature-connections/>
- Nicholson, N. 1977. *The Lake District: an Anthology Compiled by Norman Nicholson*, Harmondsworth: Penguin.
- Nicolson, M. H. 1997. *Mountain Gloom and Mountain Glory: the Development of the Aesthetics of the Infinite*. Seattle and London: University of Washington Press.
- Payne, P. G. 2016. What next? Post-critical materialisms in environmental education. *The Journal of Environmental Education*, 47 (2), 169-178. DOI: 10.1080/00958964.2015.1127201
- Peters, M. A. 2004. Geophilosophy, education and the pedagogy of the concept. *Educational Philosophy and Theory*, 36 (3), 217-226.
- Plumwood, V. 2002. *Feminism and the Mastery of Nature*. Oxon: Routledge.
- Quinn, J. 2013. Theorising learning and nature: post-human possibilities and problems. *Gender and Education*, 25 (6), 738–753.
- Raine, A. 2014. Ecocriticism and Modernism. In G. Garrard (ed.) *The Oxford Handbook of Ecocriticism*, 98-117. Oxford: Oxford University Press.

- Rautio, P. 2013. Being nature: Interspecies articulation as a species-specific practice of relating to environment. *Environmental Education Research*, 19 (4), 445-457.
- Rautio, P., Hohti, R., Leinonen, R. M., and Tammi, T. 2017. Reconfiguring urban environmental education with 'shitgull' and a 'shop'. *Environmental Education Research*, 23 (10), 1379-1390. DOI: 10.1080/13504622.2017.1325446
- Rousell, D., Cutter-Mackenzie, A., and Foster, J. 2017. Children of an Earth to Come: Speculative fiction, geophilosophy and climate change education research. *Educational Studies*, 53 (6), 654-669.
- Russell, C., and Oakley, J. 2017. Engaging the emotional dimensions of environmental education. *Canadian Journal of Environmental Education (CJEE)*, 21, 13-22.
- Schama S. 1995. *Landscape and Memory*. London: Harper Collins Publishers.
- Selhub, E. M. and Logan, A. C. 2012. *Your Brain on Nature: The Science of Nature's Influence on Your Health, Happiness, and Vitality*. Canada: John Wiley and Sons.
- Spirn, A. W. 1998. *The Language of Landscape*. New Haven and London: Yale University Press.
- Lucas, G. (Writer and Director). 1977. *Star Wars* [film]. United States: Lucasfilm and Twentieth Century Fox.
- Thompson, I. 2010. *The English Lakes: A History*. London, New York and Berlin: Bloomsbury Publishing.
- Typhina, E. 2017. Urban park design+ love for nature: Interventions for visitor experiences and social networking. *Environmental Education Research*, 23 (8), 1169-1181.
- Vidal, J. 2001. *A great white lie*.  
<http://www.theguardian.com/education/2001/dec/01/highereducation.books>

Waterton, E. 2013. Landscape and non-representational theories. In P. Howard, I. Thompson and E. Waterton (eds.) *The Routledge Companion to Landscape Studies*, 66-75.

Oxford, UK: Routledge.

Weinert, F. 2004. *The scientist as philosopher: philosophical consequences of great scientific discoveries*. Berlin, Germany: Springer.

Whitehead, A. N. 1919. *The Concept of Nature*. The Tarner lectures, delivered in Trinity college, November, 1919.

<http://archives.library.illinois.edu/erec/University%20Archives/1515022/OriginalFiles/LITERATURE/WHITEHEAD/Concept%20of%20Nature%20Whitehead.pdf>

Wylie, J. 2007. *Landscape*. London: Routledge.

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## Notes

<sup>1</sup> The use of the term ‘mattering’ is twofold; firstly to denote importance and secondly to highlight the physical and ecological performance of the concept nature.

<sup>2</sup> ‘Trophic’ usually refers to the nutritive relations between organisms – in other words, the matter that is passed between things.

<sup>3</sup> We do not *explain* the material turn as that is already attempted in the editorial of this special issue. However, it is worth noting that by thinking *with* the material turn we are embracing some of its key themes, such as a move away from dominant enlightenment epistemologies and anthropocentrism and a move towards distributed conceptions of agency and a focus on materiality.

<sup>4</sup> Inherently ‘of’ the world, always processual and inseparable.

<sup>5</sup> Imagined to be detached, separate from and independent of other ‘things’.

<sup>6</sup> We imagine many of the readers of this article will have seen the film *Star Wars* (Lucas, 1977) at some point in their life. It begins in the middle, with episode IV. The Greeks did this and called it *in media res*. The purpose of this is to distort the linearity of the storyline, to fit more closely to the non-linear nature of temporality. It encourages the observer/reader to think beyond the now normalized representational trends that exist within academe. It also reminds the reader that this is just another story (in the Brechtian tradition) and most certainly not ‘the truth’. This emphasis on storied matter sits well with both new materialisms and material ecocriticisms.

<sup>7</sup> Quote taken from the opening credits of *Star Wars*, used here to highlight the romanticized and transcendent appropriation of nature.

<sup>8</sup> The English hymn *Jerusalem* was composed by Hubert Parry in 1916 but was originally written by William Blake as a poetic preface to *Milton: A Poem in Two Books*, where Blake imagined Jesus Christ walking upon England’s ‘green and pleasant land’.

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<sup>9</sup> *Sous rature* (under erasure) is a (Heideggarian/Derridean) ploy to problematize a concept whilst keeping it in play.

<sup>10</sup> High nutrient content and species proliferation which can eventually lead to a reduced oxygen supply and species depletion if one species dominates or the rate of decay increases.

<sup>11</sup> Low nutrient content.

<sup>12</sup> As opposed to anthropomorphizing or Disneyfying the environment which simply reinforces the Romanticized perception of nature.