
1. Foregrounding vulnerability: materiality's porous affectability as a methodological platform

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INTRODUCTION

Reflections on the 'subject' of environmental law are fundamental to the question of re-imagining environmental legal research methodology, if only because such methodology has long assumed a rationalistic human knower gathering data, imposing order and meaning, and operating as an authoritative, epistemic master-subject. This 'subject' is also, as will become apparent below, constructed as being autonomous and (incompletely) disembodied. Significantly, this subject is also temporally fixed at the least vulnerable stage of human life – and is fundamentally separate from 'the environment'. It is increasingly obvious, however, that these assumptions (as will be argued below) are inimical to the avowed aim of environmental law. Accordingly, this chapter interrogates these assumptions, reflects on what might replace them, and what the implications of that replacement might be for environmental legal methodology/ies.

The chapter proceeds by critically analysing 'the subject', before bringing it directly into contact with vulnerability by deploying Fineman's theorization of the 'vulnerable subject'. In turn, the 'vulnerable subject' is then assessed for its capacity to deliver the much-needed escape from the impugned subject-object relations at the foundation of traditional environmental law. Concluding that the vulnerable subject is a powerful heuristic most usefully nuanced and extended in new materialist directions, the chapter turns to critical environmental law and towards a new materialist ontology, before drawing out the implications of such a direction for an environmental research methodology responsive to vulnerability as materiality's porous affectability.

THE 'SUBJECT' AT 'THE CENTRE' (OF ENVIRONMENTAL) LAW)

I have convinced myself that there is absolutely nothing in the world, no sky, no earth, no minds, no bodies. Does it now follow that I too do not exist? No: if I

4 *Research methods in environmental law*

convinced myself of something then I certainly existed. But there is a deceiver of supreme power and cunning who is deliberately and constantly deceiving me. In that case I too undoubtedly exist, if he is deceiving me; and let him deceive me as much as he can, he will never bring it about that I am nothing so long as I think that I am something. So after considering everything very thoroughly, I must finally conclude that this proposition, I am, I exist, is necessarily true whenever it is put forward by me or conceived in my mind.¹

Descartes' famous ontological cleavage between 'mind' (*res cogitans*) and 'matter' (*res extensa*) has decisively shaped the foundational assumptions of environmental law.² Indeed, one could almost say that environmental law's very 'object' ('the environment') is born of the Cartesian dualistic rupture in the sense that, as Philippopoulos-Mihalopoulos has pointed out, the term 'environment' conveys the idea of something peripheral to a 'centre' which it is assumed to revolve round ('*envirer*').³ That is to say, the etymology of the term 'environment' points relentlessly to an underlying conceptualization of 'the environment' as object surrounding an assumed, privileged (and frequently invisibilized) pivot point: 'the subject'. 'The environment' is also the site of '*environing*' – the sense in which 'the subject' carves out spaces in order to control and govern them – particularly through environmental law and governance.⁴ In either sense of the language, there is always an active subject and an acted-upon object, which is simultaneously defined by the centrality of the subject and always remains thoroughly susceptible to its gaze and action.

Accordingly, the methodological implications of the Cartesian rupture were decisive. As Weber puts it, since Descartes, 'the sciences, whether natural, social or economic, try to grasp the world as if it were a dead, mechanical process that could be understood through statistical

¹ R Descartes, *The Second Meditation* at 7:25.

² K Bosselmann, 'Losing the Forest for the Trees: Environmental Reductionism in Law' (2010) 2 *Sustainability* 2424–48, <<http://www.mdpi.com/2071-1050/2/8/2424/pdf>>; K Bosselmann, 'A Vulnerable Environment: Contextualizing Law with Sustainability' (2011) 2(1) *Journal of Human Rights and the Environment* 45–63.

³ A Philippopoulos-Mihalopoulos, 'Towards a Critical Environmental Law', in A Philippopoulos-Mihalopoulos (ed.), *Law and Ecology: New Environmental Foundations* (Abingdon: Routledge, 2011) 18–38, at 22: the word derives from '*en*' (in) and '*virer*' ('to turn') – 'This implies an inside that stands erect and an outside that surrounds us, the dervish-like outside that whirls like a frilly skirt around a stable pivot . . . not only stable, fixed and unyielding but significantly "central"'.⁴

⁴ TW Luke, 'On Environmentality: Geo-Power and Eco-Knowledge in the Discourses of Contemporary Environmentalism' (1995) 31 *Cultural Critique* 57–81.

or cybernetic analyses . . . [as a] dead *res extensa*'.⁵ And even if 'nature' is thought to be in some important sense 'alive', then that aliveness is merely a form of life without meaningful agency, an objectified 'nature' long assumed – since Bacon at least – to be fully available to exploitation and control by the rational subject:⁶ the methodological commitments of Western law and science – including environmental law – have long privileged 'the canonical institution of the *cogito*, . . . [which] is by necessity disembodied, monological/narcissistic and ocularcentric'.⁷

In epistemological terms, the isolated disembodied mind of the rational Cartesian subject has produced what Code calls the 'epistemology of mastery'.⁸ This epistemological mastery reflects a programme of assumed human supremacy permitting no knowing to 'nature' as such. 'Nature' is rather the quintessence of the *objectified* upon which the knowing subject enacts its will and rationality. And this rationality is a fundamentally disembodied rationality:⁹ an eye in the sky; an abstractionist view from nowhere – an 'epistemological Panopticon'.¹⁰

The foundations of the epistemology of mastery reflect and construct, moreover, orders of power. Merchant, for example, argues that a convergence between Cartesian philosophy and Baconian science brought about 'the death of nature' through Bacon's '[transformation of] tendencies already extant in his own society into a total program advocating the control of nature for human benefit'.¹¹ This control, however, is both violent and gendered: for Bacon, 'Nature must be "bound into service"

⁵ A Weber, *Enlivenment: Towards a Fundamental Shift in the Concepts of Culture and Politics* (Berlin: Heinrich Boll Foundation, 2012) at 14.

⁶ C Merchant, *The Death of Nature: Women, Ecology and the Scientific Revolution* (New York: Harper Collins, 1990).

⁷ HY Jung, 'Merleau-Ponty's Transversal Geophilosophy and Sinic Aesthetics of Nature', in SL Cataldi and WS Hamrick (eds), *Merleau Ponty and Environmental Philosophy: Dwelling on the Landscapes of Thought* (New York: State University of New York Press, 2007) 235–57 at 239.

⁸ L Code, *Ecological Thinking: The Politics of Epistemic Location* (Oxford: OUP, 2006).

⁹ M Johnson, 'Preface', in M Johnson, *The Body in the Mind: The Bodily Basis of Meaning, Imagination and Reason* (Chicago and London: Chicago University Press, 1987) at x.

¹⁰ Jung, n 7 above, at 239. (The 'panopticon': a point from which one viewer can observe all without being seen: the analogy draws on Bentham's design for the perfect prison in which the guard occupies a central observatory tower with visual access to all cells, and all prisoners, without being visible himself.)

¹¹ C Merchant, 'The Death of Nature', in ME Zimmerman et al., *Environmental Philosophy: From Animal Rights to Ecology* (New Jersey: Prentice Hall, 1998) 277–90 at 280.

and made a “slave”, put “in constraint” and “molded” by the mechanical arts. Moreover, the “searchers and spies of nature” were to discover her plots and secrets¹² – in the process restoring an assumed Edenic masculine supremacy (Eden being forfeited because of Eve). Significantly, such masculine supremacy was to be restored, Merchant argues, precisely through the ‘relentless interrogation’ of nature as ‘another female’.¹³ The deep foundations of environmental law are embedded in an intrinsically gendered ontology of a world dissected into subject/object (masculine/feminine). This division has further implications. Epistemic mastery in its historical outworking has archetypally reserved rationality for a very narrow sub-set of human beings: white, European, property owning and male – set against *the rest* (including non-human animals and nature as ‘object’). Disembodied rationality, in short, for all its insistence on the neutrality, objectivity and distance of reason, had (and has) an entirely specific form of embodiment ‘smuggled’ within it.¹⁴

The trajectories of this politics of disembodiment have continued historically to unfold in the foundations of law and in legal theory, strongly influenced by Immanuel Kant, the philosophical colossus whose work has been profoundly influential in the formation of legal epistemology. For Kant, the body is always subservient *at best* in the construction of and accumulation of knowledge.¹⁵ Kantian rational moral agency (so central to the deontic preoccupations of the legal) hinges precisely upon a disembodied reason that establishes universal knowledge *a priori*: the Kantian *person* – the ‘transcendent self’ ‘lies outside space and time’¹⁶ and *this* is precisely the ‘subject as the subject of rights: the legal person’.¹⁷ Normative and moral reasoning, for Kant, ‘can have absolutely nothing to do with either human feeling or the fact that we have bodies’.¹⁸ And while the Kantian transcendental – as opposed to the transcendent – self does exist

¹² Ibid, 281.

¹³ Ibid, 282.

¹⁴ S Ahmed, ‘Deconstruction and Law’s Other: Towards a Feminist Theory of Embodied Legal Rights’ (1995) 4 *Social and Legal Studies* 55–73.

¹⁵ The body’s role is limited to its perceptual mechanisms, which serve rationality by gathering information, having a sharply attenuated role in the assessment of information: G Lakoff, *Women, Fire and Dangerous Things: What Categories Reveal About the Mind* (Chicago: University of Chicago Press, 1987) at 174.

¹⁶ A Assiter, *Kierkegaard, Metaphysics and Political Theory: Unfinished Selves* (New York: Continuum International Publishing, 2009) at 15.

¹⁷ Ibid, at 16.

¹⁸ V Seidler, ‘Embodied Knowledge and Virtual Space’, in J Wood (ed), *The Virtual Embodied* (London: Routledge, 1998) at 17, cited by B Ajana, ‘Disembodiment and Cyberspace: A Phenomenological Approach’ (2005) *Electronic Journal of*

in relation to bodies and is necessary for knowledge in the phenomenal world, the body ultimately remains for Kant (as for Descartes) fundamentally *external* to reason as ‘a lack of freedom . . . [leading] away from the path of pure reason’.¹⁹

Perhaps surprisingly for those inspired by disciplines that have long moved to anti-Cartesian and post-Cartesian positions, the pure rational disembodiment of the legal subject, built upon the foundations postulated by Descartes and Kant,²⁰ is still influential – and is clearly discernible in modern environmental law. Environmental law, despite its aspirations, and despite efforts to embrace the complexity of ecology, is still at a profound level continuous with the history of the modern subject.²¹ And the entire history of the modern subject is precisely that of a knowing, separative agent who *acts upon* ‘nature’ (now reduced to ‘the environment’) as a passive backdrop to *the only real action that counts* – the exercise of ‘human’ (rational) agency.²²

But how *inclusively* ‘human’ is this rational agency? All is not as it seems. This ‘human’ is hardly human at all – if by ‘human’ we intend to signify *homo sapiens* as a truly inclusive collective construct. For the ‘human’ who possesses rational agency, as has already been noted, has historically had a highly particularistic (exclusory) character: Enlightenment rational agency, it turns out, is archetypally the preserve of a narrowly selective class of human beings.²³ Indeed, the masterful subject performs a kind of ‘methodological coloniality’:²⁴ in its penumbral zones, beyond the assumed ‘pure rationality’ of its Eurocentric ‘centre’ lies an entire continent of ‘others’ not considered to be archetypally rational and which are, accordingly, not paradigmatic instances of the truly ‘human’ (and certainly not

Sociology (available at <<http://www.sociology.org/content/2005/tier1/ajana.html>> (last accessed 22 June 2014).

¹⁹ J Richardson, ‘A Refrain: Feminist Metaphysics and Law’, in J Richardson and R Sandland (eds), *Feminist Perspectives on Law and Theory* (London: Cavendish, 2000) 119–34 at 128.

²⁰ P Halewood, ‘Law’s Bodies: Disembodiment and the Structure of Liberal Property Rights’ (1996) 1 *Iowa Law Review* 1331–93.

²¹ V De Lucia, ‘Competing Narratives and Complex Genealogies: The Ecosystem Approach in International Environmental Law’ (2015) 27/1 *Journal of Environmental Law* 91–117.

²² D Chakrabarty, ‘The Climate of History: Four Theses’ (2009) 35 *Critical Inquiry* 197–222.

²³ See HY Jung, ‘Enlightenment and the Question of the Other: A Postmodern Audition’ (2002) 25 *Human Studies* 297–306.

²⁴ L Tuhiwai Smith, *Decolonizing Methodologies: Research and Indigenous Peoples* (London: Zed Books, 2012).

of the legal subject). These ‘others’, as the quotation above from Merchant implies, stand in a complex, hierarchical set of entanglements with ‘nature’ as object. The epistemology of mastery has long denied ‘full/true rationality’ (and its privileges) to the non-white, non-male, non-property-owning denizens consigned to the marginal, the feminine, the relatively ‘primitive’, and so forth. Such rationalistic orderings have had, moreover, violent historical results for the blood and bone realities of bodily life on this planet: the subject’s ‘others’ reflect predictable patterns, ‘entanglements of oppression’,²⁵ violently yoking non-dominant and marginalized humans, non-human animals and ‘nature’ in a spectrum ranging from the trope of the rationalistic, with European man at one end and the messy concatenation of nature, femaleness, animality and irrationality at the other.²⁶

Given that ‘nature’ is set up in opposition to the rational agency of the disembodied subject – and given that ‘nature’ is reduced to ‘the environment’ revolving around this subject and is laid open to its organizing will and action – it is unsurprising that environmental law to a significant extent reiterates the objectification of the ‘natural world’.²⁷ Indeed, even environmental law’s more imaginative recent forays into ecology reveal a considerable degree of internal tension placed upon it by the continuing influence of the powerful dualistic, disembodied, philosophical assumptions at issue here.²⁸

Thus, even while contemporary environmental legal approaches might be diversifying – and in the process producing visibly complex tensions between traditional juridical subject-object relations and more system-sensitive modes of analysis – the continued distribution of ‘the environment’ around a central ‘subject’ remains stubbornly problematic.

²⁵ DA Nibert, *Animal Rights, Human Rights: Entanglements of Oppression and Liberation* (Oxford: Rowman and Littlefield, 2002).

²⁶ M Deckha, ‘Intersectionality and Post-humanist Visions of Equality’ (2008) 23 *Wisconsin Journal of Law, Gender and Society* 249–67.

²⁷ This is one of the core insights, for example, at the heart of Earth Jurisprudence and its critiques of law. With respect to environmental law in particular, see Bosselmann, ‘Losing the Forest’, n 2 above, and Bosselmann, ‘A Vulnerable Environment’, n 2 above, especially at 46–51.

²⁸ De Lucia, n 21 above.

CHALLENGING THE RELATIVELY INVULNERABLE AUTONOMOUS SUBJECT (OF ENVIRONMENTAL LAW)

The subject of environmental law (and of law more generally), as noted above, is disembodied, but – as also intimated above – exhibits identifiable body-related characteristics. Disembodiment is better described, therefore, as *quasi*-disembodiment, in the sense that there is always a body ‘smuggled in’.²⁹ This smuggled body is a highly particularistic gendered body: ontological disembodiment is profoundly *masculine* (an identification that relies on a particular morphology). This body is also white, heterosexual, able-bodied, and *temporally frozen*:³⁰ the smuggled masculine body of disembodiment is thus most emphatically not that of a child or of an old or infirm man, but is a trope signifying the fullest possible possession of male bodily (and necessarily social) powers at the height of autonomous agency.³¹

The autonomous agency of the rational subject and ‘his’ assumed characteristics have long offered a particular target for feminist analysis. Fineman – especially – has offered a sustained engagement with the ‘autonomy myth’.³² Directing her critical gaze at the particular construction of autonomy at work in the legal and political subject, Fineman has pointed clearly to a central problem presented by its lack of realism – *its relative invulnerability*.³³ The ‘autonomous subject’, Fineman argues, freeze-frames one singular stage of development, such that the temporal arrest of the autonomous subject locks ‘him’ into one particular stage of life: precisely ‘*the least vulnerable*’.³⁴

This relative invulnerability of the subject is a profound problem. It produces systemic injustice through its mediation of a formal liberal equality that systematically excises the messy social conflict that it both enacts and simultaneously operates to occlude.³⁵ And the occlusion of concrete social relations directly connects to the disembodied ontology foundational

²⁹ Ahmed, n 14 above, at 56.

³⁰ M Fineman, ‘The Vulnerable Subject: Anchoring Equality in the Human Condition’ (2008) 20 *Yale Journal of Law and Feminism* 1–23 at 11–12.

³¹ *Ibid.*

³² MA Fineman, *The Autonomy Myth: A Theory of Dependency* (New York: The New Press, 2003).

³³ Fineman, n 30 above, at 12.

³⁴ *Ibid.*, emphasis added.

³⁵ A particularly powerful account of this mechanism is provided by Norrie, in A Norrie, *Crime, Reason and History: A Critical Introduction to Criminal Law* (London: Butterworths, 2001).

to the legal order as a whole. Speaking of the legal subject specifically, Douzinas argues that the ‘self’ thus produced is ‘strangely mutilated’ and ‘unencumbered’.³⁶ It is also radically separative and bounded.³⁷ It should be noted, however, that the ‘invulnerability’ and separation of this subject is never complete, even in theory: there *is* a conception of vulnerability at work in legal relations – but this vulnerability primarily arises from threats of attack by others upon the legal subject’s agential bodily autonomy.³⁸

What might a focus on vulnerability – instead of a disconnected form of rationalistic autonomy – yield for environmental legal methodology? How might the subject of environmental law itself be reconfigured or even dissolved, and with what effect? In order to answer these and cognate questions, the analysis here will now focus upon Fineman’s trope of ‘the vulnerable subject’ before moving on to extend a vulnerability analysis to a new materialist ontology that opens up rich possibilities concerning vulnerability, understood as materiality’s porous affectability, as a foundation for an environmental legal methodology.

‘The Vulnerable Subject’

Over recent years, Fineman has explicitly developed an overtly heuristic device: ‘the vulnerable subject’,³⁹ as part of her wider ‘vulnerability thesis’ (which includes attention to the vulnerability of social institutions). Fineman developed the vulnerability thesis as an extension of earlier critical work in which she deployed ‘dependency’ as a way of attacking core assumptions of the autonomy myth. For Fineman, the ‘vulnerable subject’ should replace the autonomous master-subject assumed by law and legal discourse in order to introduce an altogether more relational and situated subject. The vulnerability of ‘the vulnerable subject’ is emphatically

³⁶ C Douzinas, *The End of Human Rights* (Oxford: Hart Publishing, 2000) at 238.

³⁷ J Nedelsky, ‘Law, Boundaries and the Bounded Self’ (1990) 30 *Representations* 162–89.

³⁸ This is reflected, for example, in the understanding of bodily vulnerability deployed by Hobbes, in particular. See SY Whitney, ‘Dependency Relations: Corporeal Vulnerability and the Norms of Personhood in Hobbes and Kittay’ (2011) 26/3 *Hypatia* 554–74. A similarly attenuated notion of vulnerability is deployed by the legal philosopher HLA Hart (see HLA Hart, *The Concept of Law* (Oxford: Clarendon Press 1994) at 193–200). For a fascinating sociological discussion of vulnerability drawing on a broadly Hobbesian account, see BS Turner, *Vulnerability and Human Rights* (Pennsylvania: Pennsylvania University Press, 2006).

³⁹ Fineman, n 30 above.

‘universal and constant’ – albeit that its vulnerability is variably experienced. The ‘vulnerable subject’, for Fineman, implies the necessity for ‘the responsive state’:⁴⁰ the state, on her account, is responsible for ensuring the just distribution of forms and modes of ‘resilience’ in order to manage and mediate universal vulnerability.

Vulnerability, on Fineman’s account, is an ontological characteristic of the human legal and political subject properly understood. In this respect, Fineman’s heuristic device can be understood as an attempt to resist the implications of the disembodied, invulnerable and panoptic height assumed by the autonomous subject. Indeed, Fineman’s vulnerability analysis directs attention precisely to questions of material relations and to relativities of resilience mediated by institutions – themselves understood to be vulnerable – which are to bear the responsibility of even-handedness towards a political community of universally vulnerable – but unevenly situated – subjects.

It may not have escaped the reader’s attention, however, that Fineman’s ‘vulnerable subject’ is human. It is positioned specifically within a Western liberal political community as the recipient of the action/inaction of complex social institutions charged with being distributively sensitive to forms of resilience.⁴¹ Her vulnerable subject is not – in terms – a non-human animal or, for example, an ecosystem. Accordingly, it is possible to argue, with some warrant, that Fineman’s analysis provides a progressive step away from the relatively invulnerable autonomous subject of law, but does not necessarily – without further development – destabilize human centrality. Accordingly, nor does Fineman’s vulnerable subject explicitly disturb the fundamental subject-object relations underlying law, including environmental law. However, Fineman’s thesis can be understood to reformulate those subject-object relations to a certain extent – if only by dint of destabilizing the character of the political and legal subject – at least, by re-embodiment and situating it within a social matrix characterized by the presence of vulnerable institutions and structures. To that extent, Fineman’s implicit ontology is promisingly materialist. Where then, does Fineman’s thesis take the present analysis?

Fineman’s heuristic certainly opens up the space for a vulnerable (human) subject of environmental law. Embodied vulnerability also fully implies an eco-embedded subject once we add to Fineman’s account fuller attention to the implications of multiple forms of corporeality. Her thesis has, for example, more recently been extended to animals as vulnerable

⁴⁰ Ibid, at 19–22.

⁴¹ Ibid, 13–15.

subjects.⁴² Initially, then, it is relatively clear that Fineman's analysis offers a theoretical foundation from which to consolidate and to refine nascent developments concerning environmental vulnerability. Fineman's work has also been deployed to assess the jurisprudence of human rights courts responding to specifically vulnerable groups⁴³ and, just as importantly, can be rendered as consistent with a developing human rights jurisprudence concerning forms of environmental vulnerability more generally.⁴⁴ That said, there are important distinctions between Fineman's approach and that of human rights courts to date. The explicit language of vulnerability deployed by the European Court of Human Rights, for example, tends to identify specifically 'vulnerable groups' or identities – a formulation of which Fineman would be critical – at least in so far as such approaches could be said to pathologize vulnerability and/or to fix vulnerable identities. At present, the evolving jurisprudence fails to embrace the central critical challenge issued by Fineman to the autonomous subject, precisely because vulnerable groups remain 'other' or marginal to the normally assumed (autonomous) subject of rights. Fineman's explicitly post-identity conception⁴⁵ of the vulnerable subject could therefore be understood to be a challenge to the developing human rights jurisprudence by destabilizing the silent measure against which vulnerable 'others' tend to be positioned.

What, though, might the methodological gains be of supposing 'the vulnerable subject' of environmental law? What might extending Fineman's heuristic in this direction yield? And what limitations to Fineman's heuristic might such an extension reveal?

⁴² A Satz, 'Animals as Vulnerable Subjects: Beyond Interest-Convergence, Hierarchy and Property' (2010) 16 *Animal Law* 65–122.

⁴³ A Timmer, 'A Quiet Revolution: Vulnerability in the European Court of Human Rights' in M Fineman and A Grear, *Vulnerability: Reflections on a New Ethical Foundation for Law and Politics* (Aldershot: Ashgate, 2013) 147–70.

⁴⁴ See, for example, E Grant, 'Reimagining Adjudication: Human Rights Courts and the Environment', in A Grear and E Grant (eds), *Thought, Law, Rights and Action in an Age of Environmental Crisis* (Cheltenham: Edward Elgar, 2015) 155–87. See also, D Shelton, 'Developing Substantive Environmental Rights' (2010) 1/1 *Journal of Human Rights and the Environment* 89–180.

⁴⁵ Fineman, n 30 above, at 1, 17–18.

THE VULNERABLE SUBJECT (OF ENVIRONMENTAL LAW): SOME METHODOLOGICAL GAINS AND LIMITATIONS

Fineman's vulnerable subject offers some useful methodological gains to environmental legal thinking – especially when the implications of her subject's ontology are extended beyond the human subject at the centre of her thesis.

First, though, and minimally, the construct of 'the vulnerable subject' suggests that the human subject is 'fully embodied and ineluctably embedded in lived actualities and material conditions'.⁴⁶ The inescapably corporeal nature of this vulnerable subject fits well with environmental legal inquiry necessarily engaging with (if not always explicitly) body-transiting toxins, the permeability of skin, the penetrability of lungs, the fundamentally ingestive dynamics of being a porous, meaty organism folded within a material milieu laden with particulates, vapours, vibrations, toxins, and so forth.

Secondly, Fineman's argument that the vulnerable subject presents a powerful ethical case for positioning 'actual lived experience and the human condition . . . at the center of our political and theoretical endeavours'⁴⁷ presents an ethical imperative strongly supporting environmental law's intrinsic openness to material situatedness – to *this* chemical leak *here*, to *that* poisoned water *there*, to *these* members of *this* community suffering from toxicity effects from *this* factory, and so forth.

Thirdly, the vulnerable subject is vulnerable in an enduringly 'universal' sense (simply as an incident of human bio-materiality) – as a kind of corporeal predicament. And yet, precisely because of the centrality of corporeality and embodiment to the vulnerability thesis, the vulnerable subject is also simultaneously radically particular as a result, again, of corporeality itself – meaning that the implications of vulnerable corporeality are necessarily to be traced into diverse structural locations – turning environmental legal attention to *situatedness* and to the *singular*, as well as to towards commonality.

Fourthly, the ethic emerging from the implications of embodied vulnerability suggests that a high degree of epistemic humility should characterize environmental legal methodologies. This is because *subject-positionality*

⁴⁶ A Gear, 'Vulnerability, Advanced Global Capitalism and Co-Symptomatic Injustice: Locating the Vulnerable Subject', in ML Fineman and A Gear, *Vulnerability: Reflections on a New Foundation for Law and Politics* (Aldershot: Ashgate, 2013) 41–60 at 49.

⁴⁷ Fineman, n 30 above, at 2.

itself emerges as a central feature of ethical encounter simply because corporeality implies location/position/situation, both social and ‘environmental’.⁴⁸ If fully embraced by environmental law, legal practices and methodologies, this fourth insight offers potentially transformative forms of inclusion, responsabilization and openness to multiplicity and to complexity. Extended even further, this also implies the multiplication of modes of ‘knowing’ and a methodological direction offering direct resistance to liberalism’s assumption of the Cartesian view from ‘nowhere’ (which sadly still underwrites too much environmental legal methodology⁴⁹ and the production of environmental governance as an eco-panoptic enclosure).⁵⁰

Fifthly, elevating the theoretical significance of vulnerable corporeality and embodiment makes it possible to see even further gains for environmental legal thinking. Drawing upon embodied vulnerability as the foundation of a methodological strategy necessarily reveals an inescapably creaturely continuity in the *vulnerability of the living order itself*.⁵¹ This continuity – reflecting, as it does, the ultimate inescapability (and relativity) of corporeal porosity and affectability – finesses Fineman’s work, pointing beyond the immediate focus of her concerns, and extending them. The vulnerability of the living order moves beyond ‘the vulnerable subject’ (unless the entire living order is taken as the vulnerable subject in question). Fineman’s vulnerable subject (notwithstanding its plastic amenability to extension to the non-human) currently remains located within a liberal polity. The vulnerable subject is a powerful, re-embodiment and critical trope designed to bring substantive questions of justice and the distribution of resilience firmly into view. The implications of Fineman’s thesis are therefore extremely rich – but rather more indirect when it comes to the full development of a vulnerable open ontology and exploration of its epistemological implications.

This chapter will now bring vulnerability – understood as materiality’s porous affectability – into direct contact with post-Cartesian new materialist theory. This is a theoretical move beyond (and at the same time, in aspects, more deeply *into*) ‘the vulnerable subject’ towards vulnerable embodied eco-subjectivities and ‘critical environmental law’.⁵²

⁴⁸ See Grear, n 46 above.

⁴⁹ De Lucia, n 21 above.

⁵⁰ See Luke, n 4 above.

⁵¹ A Grear, ‘The Vulnerable Living Order: Human Rights and the Environment in a Critical and Philosophical Perspective’ (2011) 2/1 *Journal of Human Rights and the Environment* 23–44.

⁵² Philippopoulos-Mihalopoulos, n 3 above.

TOWARDS 'CRITICAL ENVIRONMENTAL LAW'

A move towards a critical environmental law allows us to imagine taking Fineman's vulnerable subject and throwing it into the ambiguities, dynamism, flow and limitations of bio-material energies in the raw exposure of a radically open ontological plane. Here, the vulnerable subject disperses – not lost from view, but rendered contingent as a choice of designation in the face of an explicit and radical de-centring. This is because critical environmental law (CEL) overtly locates environmental law, the vulnerable subject and everything and anything else, as we shall see, upon a radically de-centred, moving ontological plane.⁵³

CEL is the proposal of Philippopoulos-Mihalopoulos. Philippopoulos-Mihalopoulos proposes a radically new ontology for environmental law. Drawing upon his longstanding engagement with Deleuzian theory, Philippopoulos-Mihalopoulos offers an 'open ontology' – a space of 'radical immanence' – into which bodies of all kinds are 'thrown' in an 'all embracing sum of folds, falls and connections and where all causality is contained within its boundaries'.⁵⁴ Here, the centre disappears: the centre is emphatically replaced by *the middle*. The middle always *de-centres*, forbidding stasis and all forms of categorical fixity. This ontology also confounds the epistemology of mastery, for it

does not allow for a perspective that calls itself an origin and from which all is panoptically surveyed. The middle is not the centre. In fact, it is not even a beginning, properly speaking. It is a movement along a movement, something equivalent to stepping out of a door and being carried away by a crowd irresistibly pulling this way and that.⁵⁵

For Philippopoulos-Mihalopoulos, environmental law is caught up in an animate flow. It exists only on the dynamic plane of immanence, 'thrown in the middle of an open ecology'.⁵⁶ This has direct epistemic implications, because environmental law – logically *all law* – can no longer occupy 'the centre' so long imagined by Western epistemology. The task of environmental law in this radically de-centred situation is 'to work along both its

⁵³ A Philippopoulos-Mihalopoulos, '... the sound of a breaking string': critical environmental law and ontological vulnerability' (2011) 2/1 *Journal of Human Rights and the Environment* 5–22.

⁵⁴ Ibid, at 6, drawing on 'the plane of immanence' as discussed in G Deleuze and F Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (trans. B Massumi, London: Continuum, 2004).

⁵⁵ Philippopoulos-Mihalopoulos, *ibid*, at 7.

⁵⁶ Ibid, 10–12.

connection with an open ecology of . . . fluidity *and* its legal structures in order to construct a new language (-logy) to communicate about this new home (*eco* from the Greek *oikos*, “home”).⁵⁷

Philippopolous-Mihalopoulos puts forward four critical environmental positions.

Position 1: Critical environmental law begins in the middle. Methodologically, this necessarily means relinquishing the illusion of the control of nature – and, of course, means the inevitable abandonment of the myth of the centre itself. There is a sense in which the middle is all there is. The middle is also, necessarily, inescapably *material*. Thus, for environmental law to ‘begin in the middle’ indicates that environmental law must embrace its own materiality. This is not a question of environmental law embracing a relationship *with materiality*, for that would retain a binary interaction reminiscent of the hypostatized knower and the known/subject and object. Rather, environmental law must embrace the materiality of environmental law itself. Indeed, environmental law, of all areas of law, is most ‘exposed to its own materiality’ through its

dealings with scientific thresholds, ecological catastrophes, urban poverty, sick bodies and polluted atmospheres. Most recently there is the challenge of material inscription of the law within the body of genetically modified crops. These are relatively recent encounters for the law and from such encounters the law must muster the power to change itself.⁵⁸

The intrinsic materiality of law and the explicit exposure to it that environmental law is forced to face up to by the nature of what it is tasked with, amounts to a turn towards the materio-corporeal in all its aspects. The turn here is precisely a turn towards the affectability, the openness, the porosity, the vulnerability of bodies of all kinds as complex assemblages of flesh, fluids, subatomic energies, microbiological clusters, information, meanings and a multitude of un-listables. This is a radical turn towards multitudinous processes moving at different temporal scales across the spatiality of the world – a turn towards, in Alaimo’s terms, multiple ‘transits’:⁵⁹ the movement of toxins (in Alaimo’s case), fluids,⁶⁰ particulates, air, viruses,

⁵⁷ Ibid, at 15.

⁵⁸ Ibid, at 20.

⁵⁹ S Alaimo, *Bodily Natures: Science, Environment and the Material Self* (Bloomington: Indiana University Press, 2010) at 2: Alaimo here introduces the concept of ‘transcorporeality’ – which focuses on movements/transits through and between bodies of all kinds.

⁶⁰ For an outstanding and beautiful contribution offering water as the focus of an ‘aqueous ecology’ as a posthumanist feminist contribution to the theoriza-

human and non-human-animal bodies (alone or in herds/crowds/flocks etc.), tidal flows, airborne and waterborne bacteria – and an open-ended multiplicity of more such.

Position 2: Critical environmental law is moving along its open ecology. This position necessarily means casting away dualisms – including the commonly invoked binary of anthropocentrism versus ecocentrism. Centrisms – of any kind – are unhelpful reductionisms and inapt for the epistemic braille demanded by the movement of environmental law along an open ecology. At one level, with regard to Position 2, Philippopoulos-Mihalopoulos can be read as issuing a deeply pragmatic and timely challenge, because environmental law must necessarily respond to new materialist and ‘posthuman’ configurations. This, after all, is the contemporary situation in which environmental law is enmeshed: oncomice and cyborgs are just two of the material developments reflecting the *de facto* dissolution of natural/cultural, organic/mechanical, physical/non-physical divides. Simultaneously, this theoretical proposal has profound ethical implications: what would ethics look like if it responded to the *vulnerability* of environmental law’s open ecology? What fresh modes of significance and ‘mattering’ might emerge?

For Philippopoulos-Mihalopoulos CEL moving along its open ecology is a question of situating an ‘environmental law that exerts a radical critique of the traditional legal and ecological foundations, while proposing in their stead a new, mobile, material and acentric environmental legal approach’.⁶¹ Methodological implications are clearly folded into such a formulation, calling for a legal structure that no longer stands apart from the open (‘posthuman’) ecology. The vulnerability necessarily folded into this formulation mandates attentiveness to affectability; to implication; to the responsibility attached to the action of human bodies upon other bodies; to the material forces inherent in decisions; to the concrete (often repressed or denied) material underbelly of the abstract (which can, in any case, no longer deny its materio-semiotic implications and/or import). Additionally, the role of complexity in this open ecology necessitates attention to interactions, flows and intensities rather than to the fixed entities of the Cartesian ontological frame.

Here, the ontology of CEL spreads everything out along the surface of an open ecology: the human is no longer the privileged subject raised to

tion of the human right to water, see A Neimanis, ‘Alongside the Right to Water, A Posthumanist Feminist Imaginary’ (2014) 5/1 *Journal of Human Rights and the Environment* 5–24.

⁶¹ Philippopoulos-Mihalopoulos, n 53 above, at 10.

the panoptic heights of traditional ontological, epistemological and ethical reasoning: ‘The question becomes’, argues Philippopoulos-Mihalopoulos, ‘one of *nomos* law, that is, a legal regime beyond the property regime, where the singularity of the tree is equivalent to the singularity of the cyborg’.⁶² This attentiveness to singularity in the midst of a common and vulnerable ontology invites environmental law to deeper forms of juridical and ethical responsiveness to ‘what’s there’.

Position 3: Critical environmental law is singular. Environmental law, argues Philippopoulos-Mihalopoulos, has itself to be thought of as a singular body that affects and is affected by other bodies: ‘environmental law must be thought of critically as a multilayered, global, fragmented discipline, characterised by links that follow the transboundary nature of pollution’.⁶³ This ‘thinking’ of environmental law is rendered more complex by its need to negotiate different velocities: the speed of science, for example, is typically much faster than the speed of law. Such temporal unevenness calls for the inclusion of uncertainty – and, methodologically, for ‘a praxis-oriented, spatially specific, material approach that considers every problem in its singularity’⁶⁴ – yet which, presumably, still retains a memory contained in its legal institutional structures.

Position 4: Critical environmental law is immanent. Given the nature of the open ontology, how could environmental law be anything but immanent? But what does this mean? Minimally, it means resisting the ‘overly prescriptive nature of environmental discourse that . . . urges towards a rushed search for short term solutions that misunderstand the complexity of ecological protection’.⁶⁵ Obviously, such radical immanence necessarily shuts out transcendence. Law – and legal knowing – is de-centred (as is its ‘subject’ – which has now been absorbed into the open ecology). Legal epistemology is not only de-centred, but – more radically – is rendered *acentric*. There simply *is* no higher ground. There simply *is* no centre. Environmental law is explicitly and emphatically material on precisely the same plane as the materiality of that which it seeks to coordinate and is affected by. Environmental law is thus thoroughly immersed. There is no available position of transcendence – no elevated dais from which to ‘manage’ ‘the environment’ on the basis of traditionally assumed subject-object relationships through feats of epistemological mastery. This, for Phillipopoulos-Mihalopoulos results in radical self-encounter for environmental law:

⁶² Ibid, at 21.

⁶³ Ibid, at 22.

⁶⁴ Ibid.

⁶⁵ Ibid.

Environmental law has the potential of leaving representation behind, throwing itself in the ontological event of exposure: no longer a law that deals with only discourses but a law that violently unearths the materiality of the discourse; further it unearths the matter beyond discourse; even further it exposes its own materiality on the same plane as the materiality of its object.⁶⁶

Thus, a critical environmental law folds in on itself, in a self-exposure as an assemblage in a radically open ecology. Environmental law and methodology become, through these theoretical moves, irreducibly immersed in *chiasmus*.

What then becomes of the subject? We have already noted what happens to the assumed epistemic authority of ‘the subject’ – but what happens to the subject itself? Can *the subject*, even thought of as ‘*the vulnerable subject*’, remain?

TOWARDS NEW MATERIALIST FLUX

If the *on* (the ‘what becomes’/‘the suchness’) is a radically open ecology of entanglements, this has necessarily destabilizing implications for the ability to think of ‘the subject’ (understood, at least, in a traditional sense). This is true in at least three ways. First, the ecological tumult of ontology implies the disavowal of fixity. It becomes necessary to appreciate the kaleidoscopic nature of the flowering of the apparently singular ‘subject’ into a multiple self-in-process/multiple selves-in-process. Subjecthood (in so far as it is even consistently plausible beyond mere identifiers serving a psychologically comforting construct of ‘the self’ or a strategic purpose in a context) becomes intrinsically evolutive and contingent. Secondly, it becomes important to embrace the pluralization of subject-positionalities – multiple ‘subjects’ (of unpredictable posthuman kinds) now press into the *mêlée* of *what matters*, ontologically, epistemically and ethically. Thirdly, all such contingently identified ‘subjects’ are affectable (in varying ways and to differing degrees at different times and in different situations) to the forces and flows of ‘the middle’ – or perhaps, even better, ‘*the midst of*’. Equally (in varying ways, to differing degrees at different times and in different situations), all ‘subjects’ also affect ‘other subjects’ – now no longer understood as separate, but as being intra-relationally entangled.

The fixity of the traditional subject-object split, accordingly, is unsustainable. In its place are ‘subject’ and ‘object’ *identifications* (contingently drawn for purposes in contexts) – or as Merleau-Ponty once wrote, subject

⁶⁶ Ibid.

and object become but ‘two abstract “moments” of a unique structure which is presence’.⁶⁷ The Cartesian ontological chasm is replaced by the dynamic aliveness of *chiasm*.

The implications of this distinctly post-Cartesian shift are explored by theorists further developing the insights of Spinoza, Merleau-Ponty and, above all, Deleuze and Guattari – and most particularly by those theorists carving out an emergent new materialism, of which Philippopoulos-Mihalopoulos is most certainly one. Let us turn now to an introduction of new materialism – before drawing on its implications for an environmental legal methodology deploying vulnerability as a platform.

New materialist insights go to very heart of the question of what matter *is* and, relatedly, to the question of what the *ethical implications of matter are*. As Coole and Frost put it in the opening sentences of their book, *New Materialisms: Ontology, Agency and Politics*,⁶⁸ ‘foregrounding material factors and reconfiguring our very understanding of matter are prerequisites for any plausible account of co-existence and its conditions in the 21st century’.⁶⁹ What then, could be more relevant for the question of an environmental legal methodology responsive to vulnerability, or for the implications of vulnerability for environmental legal methodology?

New materialist accounts – and we can count Philippopoulos-Mihalopoulos’s critical environmental law as a distinctive new materialist contribution to legal theory – have direct implications for the present enquiry. As Coole and Frost point out, what is at stake is ‘nothing less than a challenge to some of the most basic assumptions that have underpinned the modern world, including its normative sense of the human and its beliefs about human agency, but also regarding its material practices such as the ways we labor on, exploit and interact with nature’.⁷⁰

Leaving behind the *matter* rendered ‘inert’ by Descartes, new materialism builds on new scientific discovery to unveil meanings shaking the *taken for granted of environmental law* to the core. Insights emerging from new physics and biotechnological advances make it impossible to retain with any degree of plausibility the view of matter that Descartes held. The sheer complexity of contemporary materialities – bio-engineering; artificial intelligence; instantaneous algorithm-driven global capital flows;

⁶⁷ M Merleau-Ponty, ‘An Unpublished Text by Maurice Merleau-Ponty: A Prospectus of his Work’, in M Merleau-Ponty (JM Edie (ed)), *The Primacy of Perception* (Evanston IL: Northwestern University Press, 1964) at 500.

⁶⁸ D Coole and S Frost (eds), *New Materialisms: Ontology, Agency and Politics* (Durham: Duke University Press, 2010).

⁶⁹ *Ibid*, at 2.

⁷⁰ *Ibid*, at 4.

mass population movements; climate change – and the sheer saturation of contemporary life in digitalization, cyborg interdependencies and virtual realities – renders the old, settled subject-object assumptions hopelessly inapt. Matter has escaped its imposed (imagined) inertia, evading the rigidity of categories, over-spilling linear conceptions of causality. Matter is now seen for what it is – as ‘materialization[,] a complex, pluralistic, relatively open process’ – an understanding of matter as *materiality*, moreover, which ‘[insists that] humans, including theorists themselves, be recognized as thoroughly immersed within materiality’s productive contingencies’.⁷¹

Since materiality has its own lively agencies, ‘the conventional sense that agents are exclusively humans who possess cognitive abilities, intentionality and freedom to make autonomous decisions and the corollary presumption that humans have the right or ability to master nature’ is completely disrupted.⁷² Almost everything about the taken for granted stability of the world (of us/them; of me/it; categorizations; reifications) is radically shaken, including traditional environmental legal subject-object relations.

In short, the complex, lively, nonlinearity and self-emergent properties of materiality insist on the need for a far more complex and contingent account of environmental legal ‘subjects’ – and for a far more complex and contingent set of epistemological receptor sites in law. And the fact that vulnerability saturates material processes through the very porous affectability of the *on* itself calls upon environmental law and methodology to respond by producing a far more sensitive calibration to the epistemic and ethical implications of the vulnerability of lively materialities. Environmental epistemology needs to become a plethora of environmental knowings – a process of incarnate, contingent and vulnerable knowing by vulnerable bodies in constant intra-action in a dynamic, vulnerable ‘spatial and temporal web of interspecies dependencies’.⁷³ Epistemology itself thus becomes *ecological*.⁷⁴ And humans, including environmental researchers and lawyers, are vulnerable and enfolded into multiple ecologies as *ecologies*.⁷⁵

What then, does this indicate in methodological terms?

⁷¹ Ibid, at 7.

⁷² Ibid, at 10.

⁷³ D Haraway, *When Species Meet* (Minnesota: University of Minnesota Press, 2008) at 11.

⁷⁴ L Code, *Ecological Thinking: The Politics of Epistemic Location* (Oxford: OUP, 2006).

⁷⁵ Again, see Haraway, n 73 above, at 3–4.

TOWARDS A NEW MATERIALIST ENVIRONMENTAL METHODOLOGY RESPONSIVE TO VULNERABILITY

At this point, it seems important to trace out in more detail some potential methodological implications of a commitment to ‘materialization as a complex, pluralistic, relatively open process’ that repositions ‘humans, including theorists themselves ... as thoroughly immersed within materiality’s productive contingencies’.⁷⁶ Fox and Alldred have recently delineated the outlines of a new materialist methodology in social science research,⁷⁷ an account upon which we will draw here in order to trace out a methodological proposal sensitive to vulnerability as a characteristic of a new materialist account of environmental law’s open ecology.

Fox and Alldred are particularly interested in research design methods in what they call ‘new materialist social inquiry’.⁷⁸ Drawing on an ontology explicitly inspired by the work of Deleuze and Guattari, they focus on the central notion of a ‘research assemblage’ made up of interrelations between data, methods and contexts, and of course, the researcher. This approach unfolds in more specific methodological terms the insight that new materialist ontology dissolves the epistemic centre, replacing it with in the ‘middle’/‘midst of’, and immerses the human perspective (whether researcher, theorist or any other kind of human knower) within the flux of a lively ontology – or what Philippopoulos-Mihalopoulos (also drawing on Deleuze) calls ‘the plane of immanence’. Research itself, necessarily, is an assemblage.

An assemblage can be understood to be relations and processes of production that emerge ‘in a kind of chaotic network of habitual and non-habitual connections, always in flux, always reassembling in different ways’.⁷⁹ Assemblages are therefore best understood to be contingent and relatively ephemeral: as assemblages and *reassemblages* operating as Deleuze and Guattari’s ‘machines’ – ‘that do something, produce something’.⁸⁰ An assemblage dissolves subject-object relationalities. There is no subject and no object – merely a set of relations in flux.

⁷⁶ Coole and Frost, n 68 above.

⁷⁷ NJ Fox and P Alldred, ‘New Materialist Social Inquiry: Designs, Methods and the Research-assemblage’ (2015) 18/4 *International Journal of Social Research Methodology* 399–414.

⁷⁸ *Ibid*, at 399 (abstract).

⁷⁹ *Ibid*, at 401, citing A Potts, ‘Deleuze on Viagra (or, What Can a Viagra-body Do?)’ (2004) 10 *Body and Society* 17–36 at 19.

⁸⁰ G Deleuze and F Guattari, *A Thousand Plateaus* (London: Athlone, 1988); F Guattari, *Chaosmosis* (Sydney: Power Publications, 1995), both cited by Fox and Alldred, n 77 above, at 401.

Fox and Alldred point out that in this ontology, human agency is replaced by *affect* – defined as *the capacity to affect or to be affected*.⁸¹ Affect (defined in this way) clearly brings vulnerability as materiality's porous affectability firmly into the frame of analysis. A 'DeleuzoGuattarian'⁸² ontology – from which the theoretical foundations of CEL are also broadly drawn – can thus be seen to undergird an environmental research methodology deploying vulnerability as a central methodological commitment. This methodological commitment must necessarily be attentive to dynamism and to particularity – attentive to the situated uniqueness of the encounters at the heart of the assemblage. In any given assemblage, *affect* represents shifting states and capacities, which in turn produce further shifting states and capacities in a non-linear, rhizomatic way that spreads out in all directions sometimes in patterned ways, sometimes unpredictably, destabilizing the assemblage itself, shifting the patterns of vulnerability and the porous affectability in play. For, as Fox and Alldred note, assemblages have a 'territorial' dimension: Deleuze and Guattari famously write of the 'territorialising' affective flows that stabilize an assemblage – and the 'de-territorialising' flows that destabilize, producing 'lines of flight' as elements of the assemblage itself peel away⁸³ – or it disassembles entirely.

Fox and Alldred outline in more specificity some results of adopting a new materialist research methodology, aspects of which will be drawn out here and applied to vulnerability as a platform for environmental legal methodology.

The way in which assemblages – and new materialist ontology in general – transversally dissolve the material/cultural dualism so long assumed by Cartesian ontology and its conceptual descendants means that research *foci* necessarily shift dramatically. 'There is nothing to prevent a relation conventionally thought of as "micro" (e.g. a consumer transaction) and a "macro" relation (e.g. a nation-state) [being] drawn into an assemblage by an affective flow; consequently, an assemblage may contain disparate elements from these different levels'.⁸⁴ As Coole and Frost suggest, new materialist ontology draws together the effects of macro-structural projects such as the international economy, 'well-honed micro-powers of governmentality' and the sheer materiality of existence as corporeal individuals inhabiting 'a world of natural and artificial objects' and having biological

⁸¹ Fox and Alldred, n 77 above, at 401, at citing G Deleuze, *Spinoza: Practical Philosophy* (San Francisco, CA: City Lights, 1988) at 101.

⁸² Fox and Alldred, n 77 above, at 401.

⁸³ Deleuze and Guattari, n 80 above, at 88–9, cited by Fox and Alldred, n 77 above, at 401.

⁸⁴ Fox and Alldred, n 77 above, at 402.

needs.⁸⁵ Accordingly, research enquiry needs to respond to the idea that assemblages contain ‘elements’ from various different levels (‘micro, meso and macro’) and that the affective flows between levels and elements are multi-directional rather than moving in traditionally conceived top-down or bottom-up ways, and are rhizomatic rather than arboreal. From the perspective of vulnerability and the open ecology of CEL, the multiplicity, complexity, convergence and divergence of affective encounters implicit in assemblages has the capacity to intensify, impose, reduce, spread and disguise vulnerabilities. It becomes essential, in the light of this, to trace with care the affective flows and lines of flight presented by the assemblage in question – and to fold vulnerability explicitly into the inquiry.

Folding vulnerability into the research assemblage necessitates the acknowledgment that the tracing of affective flows cannot be understood to be the project of the dispassionate observer along the lines of traditional rationalistic ontology and epistemology. The old myth of ‘the centre’ and its territorial dominance by the Cartesian disembodied panoptic mind is supplanted by an acentric research encounter in which the researcher him/herself is ineluctably entangled. Vulnerability of perspective becomes a live and explicit issue. It is simply implausible to see research knowledge as the authoritative product of disembodied observation and the dispassionate processing capacities of the disembodied mind. Nor can research be understood meaningfully as the imposition of purely rational explanatory order upon unruly data. Research itself is exposed. Research itself becomes vulnerable as an irreducibly immersive encounter within an affective flux. The identification of research as an assemblage also generates questions concerning the way in which research itself ‘shapes the knowledge it produces according to particular flows of affect produced by its methodology and methods’.⁸⁶ This, in turn, necessitates an epistemically humble engagement with questions of the micropolitics of research itself.

New materialist research methodology shifts the focus away from ‘individual bodies, subjects, experiences or sensations’ towards ‘assemblages of human and non-human, animate and inanimate, material and abstract, and the affective flows within these assemblages’.⁸⁷ Vulnerability should become, in this light, an explicit concern – since vulnerability is a non-monolithic, inherent aspect of materiality itself. New materialism in turn brings to a vulnerability analysis the necessity to embrace the way in which ‘affects draw the material and the cultural, and the “micro”, “meso” and

⁸⁵ Coole and Frost, n 68 above, at 27.

⁸⁶ Fox and Alldred, n 77 above, at 403.

⁸⁷ *Ibid.*, at 406.

“macro” into assembly together’.⁸⁸ This, crucially, will involve special attention to the movements back and forth within the assemblages studied and the production or exposure of economies of affect and ‘micropolitics’ that such movements reveal – including the patterns (and unpredictabilities) of the way in which vulnerability emerges, is produced, imposed, varied or ameliorated by the development of affective capacities and limitations.

An especially important shift for present purposes is the new materialist analytical move towards acknowledgement of ‘the affective relations within the research-assemblage itself’,⁸⁹ a form of critical reflexivity fundamental to *epistemic humility*, the necessity of which is implied by a vulnerability analysis, as was argued above.

What emerges for legal scholars and the processes of law specifically?

First, given the diverse and complex significance of ‘the environment’ as a plurality of sites, nodes and modes of lively materiality, it makes sense to eschew completely the notion of a stable subject-object split. This fundamental shift will be profoundly challenging for law for as long as law continues to assume its broadly Cartesian/Kantian ontology of the subject. That said, law is not a stranger to radical shifts of meaning. As an assemblage law has territorializing and de-territorializing dynamics around questions of definition: law both attempts to arrest semiotic lines of flight, to ‘capture’, ‘fix’ and ‘stabilize’ meanings and referents for coordinative/control purposes – but also destabilizes meanings, not least through legal argument, interpretive variance and the semiotic shifts operationalized by appeal processes. The destabilization of fixed subject-object relations, however, presents a particularly profound challenge given the level to which law is addicted to the construct of the rational juridical individual. It remains important, nonetheless, for law and legal researchers to find ways to re-imagine ‘the subject’ as but a contingent cut – a position-taking/making move for a purpose relevant to a particular context – purpose and context themselves, of course, being affective elements of a juridical assemblage.

Secondly, it becomes vital to admit openly that these ‘cuts’ (or framings) are just a temporary arrest or contingent ‘fixing’ of an underlying complexity. The contingency and ephemeral nature of assemblages and the affective flux they reveal means that law – perhaps most especially environmental law – needs to be framed in a way that does not attempt to lock down a juridical future in linear terms, but enables environmental law, within parameters responsive to its own nature, including its institutional dynamics, to become more responsive to a shifting situation. This would

⁸⁸ Ibid.

⁸⁹ Ibid, at 409.

mean developing the attentiveness to singularity identified as one of the key features of CEL by Philippopoulos-Mihalopoulos – and noted above.

Thirdly, as Code has shown (arriving by a different theoretical route), the removal of the epistemology of mastery (the dissolution of the ‘eye in the sky’) necessarily brings the *politics of epistemic location* into explicit view – *for law also*.⁹⁰ For law, this is particularly important, given the ‘authority’ of law and its coercive resonance and power, its capacity for ideological closure and its tendency towards a conservative resistance to rupture.

This, fourthly, suggests the need for environmental legal methodologies to be overtly critical – alert to any premature closure or to the overly rigid fixing of boundaries drawn for theoretical, operational or doctrinal purposes. In other words, since there are no ‘pure scientific facts’ fixed as if in epistemic aspic, and since observer viewpoint is ultimately inseparable from that which is observed (as Barad has shown (drawing upon the work of Neils Boer))⁹¹ then contingency and situation need necessarily to be made internal to legal epistemic choices.

Fifthly, the situatedness of ‘subjects’ and subjectivities should be foregrounded as an explicit element of normative deliberation. Opening legal analysis to a wider range of referents, to the identification of assemblages and affective flows, would necessarily introduce substantive questions of relativity of situation and problematize the tendency of legal systems to erect formalistic structures over an underlying, messier set of socio-ecological relations.

Sixthly, vulnerability (as a common but uneven condition of corporeality and materiality) fully suggests that dynamics of encounter, relativities of position and the co-symptomatic production of privilege and oppression should overtly inform environmental legal methodologies – and include overt attention to macro- and micro-politics.

A major overall gain of such an approach would be the broadening of environmental law’s epistemic ‘receptor sites’. If environmental law and methodologies were to ‘begin in the middle’/‘midst of’ rather than ‘at the centre’, then the entire epistemic focus of environmental law would need to include previously unconsidered constituencies of material meaning-making. Such an expansive epistemic embrace fully implies a juridical ‘ecological epistemology’,⁹² an ecological epistemology that in the words of Lorraine Code ‘emerges from and addresses so many interwoven and

⁹⁰ Code, n 74 above.

⁹¹ K Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham, NC and London: Duke University Press, 2007).

⁹² Code, above n 74.

sometimes contradictory issues . . . that its implications require multifaceted chartings'.⁹³ Importantly, such an epistemology is characterized, first and foremost, by responsible epistemic practices particularly sensitive to local, situated diversities and 'proposes a way of engaging – if not all at once – with the implications of patterns, places and the interconnections of lives and events in and across the human and nonhuman world . . . in projects of inquiry . . . where epistemic and ethical-political concerns are reciprocally informative'.⁹⁴

Code calls for:

A study of habitats both physical and social where people endeavour to live well together; of ways of knowing that foster or thwart such living; and thus of the ethos and habitus enacted in the knowledge and actions, customs, social structures and creative-regulative principles by which people strive or fail to achieve this multiply realisable end.⁹⁵

It is significant here that Code draws on Deleuze to fill out the notion of 'ethos' – noting that for Deleuze, *ethology* refers to 'the capacities for affecting and being affected that characterize each thing . . . [it studies] the compositions of relations or capacities between different things . . . It is . . . a matter of sociabilities and communities'.⁹⁶ These sociabilities/communities, of course, return us to the methodological centrality of the assemblage. And Code's deployment of a Deleuzian ethology also points towards the multiple relations of vulnerable/open corporealities – bringing vulnerability into an explicit encounter with Deleuzian ethology and filling out the notion of 'affect' with a rich implication of the vulnerability of materiality *in toto* – again.

Ecological epistemology thus fully suggests that environmental methodologies can be deliberately opened to a wider range of communicative openings, rendering environmental law both more responsive and responsible by 'hearing' from the patterned movements and stoppings of multiple interwoven, vulnerable 'bodies' (of all kinds) as assemblages entangled with assemblages.

Examples of legal epistemic strategies along (and/or analogous to) such lines of approach already exist. Pieraccini, for example, explores the patterned normativity emerging from the materio-semiotic inter-species encounters between sheep and humans on upland commons in the United Kingdom (UK): there, bodily habits and repetitions, practices, movements,

⁹³ Ibid, at 4.

⁹⁴ Ibid.

⁹⁵ Ibid, at 25.

⁹⁶ Ibid, at 26, citing Deleuze, n 81 above, at 125–6.

modes of stopping and of dwelling are used to guide property relations and to suggest new ways of seeing property as being, in the words of Pieraccini, the ‘contingent product of humans and non-human animals’.⁹⁷ Pieraccini has in mind an epistemic openness to the agential movement of sheep in a ‘mutual and dynamic crafting of people and environments’.⁹⁸ The particular context is provided by the hefts and sheep walks of upland commons in the UK – a ‘heft being a unit of land to which sheep are attached. Sheep learn to recognize their heft as home and are unlikely to stray unless the overall hefting system is jeopardized’.⁹⁹ The agency of the sheep, in this story, is pivotal for the production of human proprietary relations in the land, and the normativity of these relations arises directly from the patterns, the vectors and drifts of the sheep themselves. Philippopoulos-Mihalopoulos likewise charts ethological interplays and co-formations between humans and non-human animals and others in the eco- and etho-materiality of new materialist relationalities.¹⁰⁰

In the final analysis, vulnerability as a foundation for environmental legal methodology invites a fresh and salutary focus upon corporeality, affectability, porosity or permeability and situatedness. It urgently mandates the need to transcend environmental law’s traditional epistemic mono-culturalism to allow (and *by allowing*) non-human intelligences and agencies their place in the formation of law itself. Vulnerability, understood explicitly within a new materialist configuration, calls on environmental legal methodology to embrace the radical epistemic humility implied by the ‘world’ as multi-poetically emergent. This simultaneously produces a vision of a legal ecological subjectivity (or subjectivities) – in a decisive move beyond traditional subject-object relations and the ontology expressed by them. This is a move towards the inherent vulnerability of an inescapably material and corporeal existence – no longer assuming a human subject at the centre – vulnerable or otherwise – but humans and multiple others thrown vulnerable into *the-midst-of* an inherently vulnerable, dynamic and uncertain world expressing multiple forms of material agency and meaning.

⁹⁷ M Pieraccini, ‘Property Pluralism and the Partial Reflexivity of Conservation Law: The Case of Upland Commons in England and Wales’ (2012) 3 *Journal of Human Rights and the Environment* 273–87 at 273.

⁹⁸ *Ibid.*, at 280.

⁹⁹ *Ibid.*, at 281.

¹⁰⁰ A Philippopoulos-Mihalopoulos, ‘The Triveneto Transhumance: Law, Land, Movement’ (2012) 3 *Politica and Società* 447–68.