

COMMENTARY



WILEY

Thinking with soils: Can urban farms help us heal metabolic rifts in Aotearoa?

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Funding information

Ministry of Business, Innovation and Employment (National Science Challenge Building Better Homes Towns and Cities)

Abstract

In this commentary, we reflect on our work with an urban youth farm where young people (re)connect to the food system. Participating in everyday soil creation and care activities nurtured new relationships with more-than-human ecologies and beings at an urban farm called Cultivate Christchurch. In this farm, participants engaged with soils and the process of making and regenerating soil from food waste via composting. We ask whether such activities can begin to help participants think *with* soil rather than *about* it, and to heal the ‘metabolic rift’, the socioecological disconnect from food growing and nutrient cycles.

KEYWORDS

care, metabolic rift, more-than-human, soil, urban farming

1 | INTRODUCTION

In this commentary, we reflect on our work with an urban youth farm in Ōtautahi Christchurch, where young people (re)connect to the food system through participating in everyday embodied activities of caring for soil. As participants in everyday activities such as collecting waste, making compost, cleaning bins, growing, washing, distributing and eating produce, we were able to ‘think with’ soil and ‘become with’ more-than-human ecologies in the urban farm. ‘Thinking with soil’ is a term inviting us to change our thinking around soils: moving from linear, productivist understandings of soils as lifeless media to socioecological understandings of soils as contextually dependent more-than-human communities (Puig de la Bellacasa, 2017; Salazar et al., 2020). Understanding soils in this way enacts a soil care, which, we argue, has the capacity to begin healing the rupture that occurred in the ‘metabolic rift’, when nutrient cycling between town and city was ruptured under globalised industrial agriculture and when generations of humans became disconnected from food growing and nutrient cycles

(Schneider & McMichael, 2010). We finish with some thoughts on the temporality of ‘thinking with soils’.

2 | METABOLIC RIFTS IN THE 21ST CENTURY

Aotearoa New Zealand residents are becoming increasingly urbanised and spending more and more time in built environments (Holland et al., 2021; Laird & McFarland, 2014; Wilkinson et al., 2021). An increasingly urbanised population becomes increasingly disconnected from their food's origins in the land and sea, and also disconnected from the harmful environmental consequences of their food supply networks in places both near and far (Barthel et al., 2019). Food systems theorists use the notion of ‘metabolic rift’ to think about the disconnect between urban and rural. Schneider and McMichael trace this concept to Karl Marx, who pointed to ‘both a rupture in nutrient cycling between town and country and a rupture in the metabolic relation between humans and nature under capitalism’ (Schneider & McMichael, 2010, p. 462). This speaks not only to the loss

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of agricultural knowledge within urban spaces, but the wider loss of other forms of exchange between humans and nature, including food gathering, hunting, gleaning and using commons, where a relatively close or tight 'circular economy' of production and waste was retained. The metabolic rift informs us of absences both material and relational.

The material aspect of the rift is the very real geographical break in nutrient cycling, whereby the urban population consumes the products of rural agriculture, without returning the 'waste' to the soil from which it was grown (Dehaene et al., 2016). This rupture in nutrient cycling creates an opening for commercialised fertiliser products to top up the soil nutrients extracted by the vast amount of food exported from rural to urban. This is not innately related to urban and rural material flows, however, since China's early urbanisation included systems for transporting both food waste and 'night-soil' from cities back to rural areas to be returned to the soil (Yu, 2010). The material and nutrient side of the metabolic rift is exacerbated by the homogenisation of food crops and the colonisation of particular kinds of foods (plants and animals) into environments that do not easily support their nutrient requirements. For example, New Zealand began importing superphosphate in 1867 in the form of guano from the Pacific Islands, and began manufacturing it in 1881. This displaced traditional *māra kai* and *mahinga kai* activities and supported settler-led expansion of dairy, sheep and beef farming in this country.¹

New Zealand's farming sector has long been export-oriented, meaning that the rift between 'town and country' is a vast rift of millions of kilometres between food growing regions of New Zealand and food purchasers abroad. In New Zealand, our food waste is still ending up in landfill, where it cannot decompose easily and contributes to greenhouse gases (Office of the Prime Minister's Chief Science Advisor, 2022), and our bodily waste is flushed away 'we know not where' (Hawkins, 2006), with millions of litres of drinkable water. This is the disconnected nutrient cycle that the metabolic rift refers to.

The relational aspect of the metabolic rift is intertwined with the material one, but implies a further disconnect: the separation of humans (in this case, urban residents) from the natural systems that sustain their lives. There are often global separations between production and consumption processes and the ecological systems that support them. These are all social as well as ecological problems. The kinds of infrastructures that separate us from the cycling of organic waste/nutrients produce a particular kind of waste subjectivity (Diprose et al., 2023). The kind of thinking that focuses on separations, categories, hierarchies and classifications both emerges from and contributes to forms of relational metabolic rift.

3 | CARE AND RELATIONSHIP IN HEALING THE RIFT

In Aotearoa and elsewhere, scholars have been drawing on Indigenous research and worldviews for inspiration in repairing this disconnect. As Indigenous scholar Sherri Mitchell (Weh'na Ha'mu Kwasset, Penawahpskek Nation) notes, science is finally coming to see that her people's 'kinship teachings were more than fanciful fiction', and experts are pointing to Indigenous ecological knowledge as being key in addressing the multiple ecological system collapses we face in our time (Mitchell, 2020, pp. 36–37). For Jess Hutchings (Ngāi Tahu) and colleagues, there is a relationship with soil evidenced in the whakapapa connecting soil to tangata whenua in Aotearoa New Zealand. This relationality leads to *kaitiakitanga* as a form of care for and *with* nonhuman kin, and a consideration of relationships 'ki uta ki tai', from the mountains to the sea (Hutchings et al., 2018). This relationality is two-way: 'while the resources sustain us as a people they also need to be sustained by the people' (Roskrug, 2007, cited in Hutchings et al., 2018, p. 94). Acts of care, then, are implied in Te Ao Māori thinking on relationality, as they are in thinking arising from non-Indigenous feminist social studies of soil science, such as the work of Maria Puig de la Bellacasa (2012, 2017) and Yee and Sharp (2023).

In contrast to disconnected relationalities with soils, Puig de la Bellacasa proposes a relationality with soils that is non-productivist. She identifies that one of the consequences of the relational rift is the productivist management of soil, which prioritises maximum output from the soil with targeted inputs. She critiques this kind of productivist relationship with soil as a further extractive practice that does not acknowledge the community of soil in and of itself without humans, or the different kinds of timescales that complex soil communities are embedded in outside the productivist cycles of crops. She asks us to 'think with' soils, to think with their temporalities, and to engage with soils through touch. For Neera Singh working with people in the Odisha forests in India, community acts of care and spending time in the forest together renewed and nurtured collective and connected 'co-becomings' with more-than-human communities (Singh, 2017). For Singh, this is not about 'displacing the human', as some critics of the 'nonhuman turn' have supposed, but is about displacing 'Eurocentric, modern, capitalist conceptions of the human to allow other ways of being human to flourish', where 'vitalist ontologies in conjunction with Indigenous insights ... offer possibilities for a pluriversal, postcapitalist world' (Singh, 2022, p. 85, see also Escobar, 2018; Yee & Sharp, 2023).

Our ethnographic research work in recent years has explored such touch-based relationships with soils and

other more-than-human ecological communities in an urban farm in Ōtautahi Christchurch. At the time of research, Cultivate Christchurch was an urban farm and charitable trust that took in paid and unpaid interns for 3–6 month periods, while also providing inner city food waste collection and restaurant quality vegetables for sale. Kelly was part of a research team in 2017 and 2018 that conducted fieldwork with Cultivate,² while Sasha did fieldwork in 2020 as part of his thesis. We both noticed the healing nature of relationships within more-than-human places and ecologies for young people who had previously been disconnected from both nutrient cycles and relationships with the environment: Kelly's team focused mainly on the belonging in community and physical activity of gardening and care work (Dombroski, 2020), and Sasha's work focused on relationships with soil and other nonhuman actors in the space (Goburdhane, 2021). Kelly's work concentrated on understanding how Cultivate understood their values and outcomes for their work with an awareness of hybrid more-than-human collectives where more-than-human includes more than just those non-human actors considered 'animate' (Whatmore, 2002), such as place (Larsen & Johnson, 2017). Sasha's work was a multispecies ethnography using relational perspectives that highlighted the interdependence of human and non-human lives as meaningfully intersecting through 'ecological relations, political economy, and cultural representation' (Locke & Munster, 2015, p. 1). Recently, we have thought about what our work might mean for 'healing' the metabolic rift (see Clausen et al., 2015).

4 | THINKING WITH SOILS IN AOTEAROA

At Cultivate, we noted two kinds of activities that worked to restore relationships between humans and soils in particular. The first was touching and interacting with the soil. The second was embodied cognition—a thinking with the soil.

For youth interns (and us) on the farm, interacting with soil might involve shovelling large loads of mulch and food waste in a layered 'lasagne' of compost. They actively engaged in vigorous and creative interactions with potential soil—being part of the birth, regeneration and care of soil in many ways (observations and interviews with Kelly, 2018). It might also involve cleaning out bins with rotted food waste and burying food waste in the soil or putting it in worm farms to further digest. For staff and interns who had been there longer, there was a deeper attentiveness to what soil itself was saying, as one person related:

I part it with my hands a bit, 'cause you wanna see your depth. The water here gets radiated by the sun, evaporated, the wind comes in, sucks the top layer off . . . if you're putting your hand in and you're hands aren't dirty, then it's pretty dry. And it's not just the looking at the soil, you're looking at your hand and how it is affected I guess. Like, the response of the soil particles to your hand. (Interview with Sasha, 2020)

Attentiveness to soils at this time is critically important: a third of the world's productive soils are already degraded, with over 90% on a pathway to degradation by 2050 (FAO, 2021). This is important for humans because 95% of the food we eat comes from the soil (FAO, 2021). But as Krzywoszynska (2019) notes, in many industries, a productivist attentiveness to soil is mainly about stabilising nutrient extraction from soils by chemical replacements. This has detrimental long-term effects on soil biota. The kind of attentiveness that focuses on the already-present ecological communities that make up soils—which Cultivate encourages—invites a different kind of caring relationship with soils (see Krzywoszynska & Marchesi, 2020).

As Puig de la Bellacasa proposes, it is not enough to just care *about* soils or care *for* soils, but it is necessary to care *with* soils and all their attendant needs and concerns that might not fully coincide with our productivist temporalities. As humans, we can only do this through our 'impure entanglements rather than an enlightened distance' (Puig de la Bellacasa, 2017, p. 133)—through getting involved in a caring mutual relationship with soils (see also Yee & Sharp, 2023). At Cultivate, this 'thinking with' soils is expressed relationally as a life cycle to be honoured:

Compost to me is the perfect example of a truly cyclical nature, because we're getting stuff that essentially people don't want and they're throwing away, which, there is no away, like, that's not a place that exists. So by taking that and by actually honouring that cycle and bringing it back in again to grow that food, we're like showing people the cyclical nature of existence on this planet (Interview with Sasha, 2020).

Learning from the embodied and 'haptic' relationships with soils, then, involves a shift from body to cognition: the knowledge of the mundane activities of care for compost and attentiveness to soil structure through touch becoming coherent thoughts about and *with* compost

and soil, thoughts that have developed through attunement to soils (see also Siimes, 2023 and his description of knowing wine in this issue).

What does all this mean for thinking around metabolic rift in urban spaces? Does this attentiveness and interaction with soil necessarily lead to new ways of thinking and being with the environment? We cannot make that claim for this short commentary based on our work with Cultivate. But what we can say is that as with any relationship, it develops through time spent together (as many of the articles in this special issue demonstrate; see particularly the comments in Weber & Barron, 2023). Here, another kind of temporality comes into play: the urgency of soil care, the climate crisis, food security and soil loss through erosion and disastrous floods like those Aotearoa has experienced in 2023. This urgency must be matched with a relationality and an attentiveness to soil temporalities that do not match productivist timeframes. We observed and participated in an urban farm that worked both within and against productivist temporalities to relate to soil, provide food urgently for communities (Dombroski et al., 2020), and to learn new ways of being together with soil and plants (Dombroski et al., 2023; Goburdhone, 2021). Healing the metabolic rift cannot be rushed, but urban farms can enable us to attend to it through teaching more of us how to 'think with' soils as interdependent more-than-human communities with temporalities that challenge urban material and relational experiences.

ACKNOWLEDGMENT

Open access publishing facilitated by Massey University, as part of the Wiley - Massey University agreement via the Council of Australian University Librarians.

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ENDNOTE

¹ See statistics and information provided at www.fertiliser.org.nz.

² Kelly would like to acknowledge collaborators David Conradson, Gradon Diprose and Stephen Healy, who shared in the wider fieldwork for this project. This commentary reflects on the ethnographic component of the fieldwork, which she was responsible for.

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How to cite this article: Goburdhone, S., & Dombroski, K. (2023). Thinking with soils: Can urban farms help us heal metabolic rifts in Aotearoa? *New Zealand Geographer*, 79(2), 127–131. <https://doi.org/10.1111/nzg.12363>