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Transforming geographies: Performing Indigenous-Māori ontologies and ethics of more-than-human care in an era of ecological emergency

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Abstract

This paper explores how spatial governance models oriented to the well-being of the more-than-human might better enable Indigenous peoples' capacity to live-well-with and care for our more-than-human whanaunga (kin). The discussion positions Indigenous more-than-human ontologies as a cultural framework that supplants human-centrism with a focus on holistic ecological well-being. The paper considers how a culture of holistic ecological well-being might be spatially emplaced through well-being-led planning tools that ground these ontologies in neighbourhoods, cities and wider afield. Currently settler-colonial spatial governance and planning structures hold dominion in Aotearoa New Zealand, inscribing cultural territories fundamentally other to Indigenous norms. Yet the country's Te Tiriti o Waitangi contracts for tino rangatiratanga (Māori sovereignty), and to meet the Tiriti it is imperative that current spatial governance approaches swiftly converge with Indigenous ethical practices for mauri ora holistic well-being. There is much at stake. The Petrocene—our current era of ecological breakdown, accelerated by a rapacious petrocapitalism—is a time of mass death of our more-than-human whanaunga (kin).

KEYWORDS

ecological emergency, ethics of care, holistic well-being, Indigenous ontology, more-than-human, spatial governance, transformative tools

1 | INTRODUCTION

In discussing spatial governance and planning geographies in Aotearoa New Zealand, Indigenous ontologies and ethics for ecological care are positioned as normative in this paper. The term spatial governance is used here to describe a particular form of governance, as analysis, decision-making, strategy generation, legislation and actions that together enact a socio-cultural system of planning, building and land-based activities more broadly. The research described explores normalising care for the more-than-human within terrestrial discourses such as geography, spatial governance and planning. In the nearly 200 years since the establishment of a settler state, colonial cultural norms have disrupted, determined and defined the territories of our everyday lives, our homes, our neighbourhoods, our cities and rural–urban landscapes. How do we begin to transform these colonised geographies and improve the holistic well-being of our more-than-human whanaunga (kin)? What changes are required in spatial governance systems—in ontological frame, in land-use legislation, in

planning process—to achieve this aim? What tools might assist change? Such is the enquiry of this paper, focused on how Indigenous ontologies and ethics of care for the more-than-human might be more broadly spatialised in Aotearoa.

These ontologies and ethics of care are vitally important at this juncture in history. I have written elsewhere of how the current ecological breakdown (IPBES, 2019; IPCC, 2018, 2019; Steffen et al, 2018) is an artefact of a globally colonising Euro-Western culture that considers itself separate from "nature" or this living-world. Here Cartesian superior/inferior binary oppositions are a *structural–cultural artefact* that drive concept formation, wider structures of knowledge and cultural practices (Yates, 2008, 2010, 2018, 2019). These binaries—nature/culture, animate/non-animate, human/non-human—have huge agency to determine cultural beliefs and drive a perception of separation from the living-world. These culturally constructed artefacts are short-hand accounts of what reality is, ontological lenses that colour perception, ontological tools that mediate interaction and practices in the world.

Differing ontological lenses and tools give rise to radically different world-views, world-realities and geographies. Indigenous-Māori ontologies emphasise whanaungatanga as the inherent connectivity and relationality of "livingness"; and mauritanga as the immanent vitality, well-being and enmeshing of life as a field or more-than-human collective. I use the term more-than-human here to acknowledge in holistic manner the geological, atmospheric, hydrological and biological whanaunga (kin) entities that compose the livingness of this world where animate/inanimate binaries do not hold. Here is a pervasive agency, vitality and inter-relatedness, a life-system or "life-field" (Yates, 2017). Mauritanga, as the ongoing practice of integrated well-being, is the normative ground of this paper and the research programme described herein. This work is concerned with a care-full and ethical attention to living-well-with the more-than-human, in order to maintain mauri ora or life-field vitality.

What barriers impede capacities to live-well-with the more-than-human? Like Cartesian dualisms, oil is also a structural–cultural agent that permeates and structures cultural geographies and is material to the current climate and biodiversity crises. "We are petro-citizens," claims David R. Cole in *Traffic Jams*, and effectively petro-consumers given that "everything we consume depends in some way on oil" (Cole, 2013, p. 5). Heurtebise (2020) characterises the current age as the petro-Anthropocene or "Petrocene." Aotearoa was colonised as the fossil-fuel driven Industrial era was "revolutionising" Anglo/European energy geographies and political economies. In this paper, I use the term industrial-colonialism and subsequently petrocolonialism to similarly emphasise structural–cultural agents that fuel Indigenous disadvantage in settler-colonial cultures *and* ecological crises in climate, in local–global pollution, and biodiversity loss (Ceballos et al, 2017; Harfoot et al., 2018; IPBES, 2019; IPCC, 2018, 2019). Under the impact of extractive economies and land-use regulations, Aotearoa's ecological decline is starkly registered (MfE & Statistics NZ, 2019). Some 90% of biodiverse carbon sequestering wetlands have been drained or filled, two thirds of the country's native forest cleared (with remnant forests largely constrained to hilly areas, while flat plains have been stripped), and almost two thirds of our rare ecosystems are on the verge of collapse.

The question of how to live-well-with our more-than-human whanaunga (kin) is an urgent one in the current context and it is the central territory of enquiry here. In this paper I explore tools and processes to more widely embed more-than-human geographies and care-cultures into local spatial systems and geographies. Part one begins with a discussion of a small-scale, place-based collaboration with an iwi (kinship) governance group to develop mauri ora holistic well-being-led, place-based planning tools. The project is part of an urban well-being programme within Aotearoa New Zealand's *Building Better Homes, Towns and Cities* National Science Challenge.[1] The urban is the primary focus of the research programme, and this is explored at different scales, from the city to the neighbourhood to homes. Two tools together form a toolkit: a holistic data-display that assesses holistic cultural-ecological well-being in place, and a future-focused "navigator" that orients users towards a range of actions to enhance holistic well-being. This section discusses a key attribute of these tools, namely their capacity to activate discussion around holistic well-being and bring Māori ontological emphases on living-with and living-well into planning discourse, process and to ground.

Ontologies are produced and embedded in cultural frameworks, which are themselves signalled, embedded, reproduced and performed via spatial governance and planning discourses. Part two of the paper addresses how the discourse of planning is deeply defined by the legal-institutional frameworks of a colonising culture whose ontological foundations are radically other to the normative here, in this paper, and in the precedent cultures of Indigenous-Māori. Changing legal-institutional systems, structures and processes takes time, strategic effort and a supportive collective for change. This section discusses Aotearoa examples where Indigenous ontologies have begun to register in land-"use" law.

Part three of the paper moves from discussing transformation tools and planning frameworks to a consideration

of how non-Indigenous culture is "ecologising" (Latour, 1998), with specific reference to spatial discourses such as geography, urban design and planning. The paper concludes with a discussion around the importance of building transformative well-being-led networks that are grounded in our own places and linked with allies from different communities of change. The first findings from the initial phase of the mauri ora navigator tool co-design process are discussed, particularly in relation to how these may help to ground Indigenous ethics for more-than-human well-being in specific circumstances and communities.

2 | MAURI ORA HOLISTIC WELL-BEING NAVIGATOR AS AN INDIGENISING TOOL

In an effort to normalise Indigenous ontologies in spatial governance in Aotearoa New Zealand, we have been co-developing a decision-making tool that builds on iwi Māori understandings of the world, particularly around the concept of mauri ora. Mauri ora in this context refers to socio-cultural-ecological vitality. It is a critical focus in the Petrocene, in a time of extreme harm to more-than-human well-being. This mauri ora focus is a specific response to conditions on the ground here in Aotearoa, yet it also accords with the recent focus on well-being in governance discourse and well-being indexes that burgeoned as a response to the 2008 global financial crisis (Yates, 2019). Euro-Western well-being governance approaches have to date largely understood well-being as a term pertaining only to the human. The substantive difference in our holistic urban well-being research programme is that well-being is positioned as a socio-cultural-ecological condition, as mauri ora, or the vitality of the life-field or wider life-system.

Our mauri ora holistic well-being tool kit has two main elements. There is a data-display visualisation of a wide range of holistic well-being indices, positioning these according to whether the data evidences socio-cultural-ecological well-being, or mauri mate, critically poor health. The data visualisation acts as a quick heads-up display that signals well-being or the absence thereof. Then there is a "navigator" that is a well-being way-finding tool that signposts strategies for enhancing socio-cultural-ecological well-being. The navigator can be specifically designed for urban, neighbourhood or housing scales. Both these elements are intended to be co-created with place-based users, fashioned out of an adjustable kit of parts that takes into account local and cultural particularities.

The mauri ora holistic well-being navigator discussed here builds upon initial concepts generated in stage one (2017–2019) of the urban well-being research programme. Stage one was designed as a scoping stage for a larger stage two programme. The 3-year scoping project involved the development of the conceptual framework around mauri ora holistic urban well-being and concepts for an urban well-being data display and future focused navigator tool. Because the research methodology involved an analysis/action model, the project also involved the realisation of a number of small pilot projects, including a food forest, and a signage installation that communicates key dates and actions for meeting Aotearoa's zero-carbon aspirations. These pilots were intended as tests for a more expansive series of urban activations in stage two. We are, at the time of writing, still in the first few months of the second stage of this much larger research programme. We have now generated a kit of parts from which a community and place-specific navigator can be formed.

The navigator version presented here (figure 1) is the first test of a tool co-created with a community among their more-than-human relations—ancestral awa (rivers), ngawha (hot springs), roto (lakes) and whenua (land), along with the many other biotic whanaunga (kin, including humans) that together compose a vital life-field. The navigator was developed between Te Tatau o Te Arawa,[2] a Rotorua[3] pan-iwi urban co-governance (with Rotorua Council) group, and the Huritanga Mauri Ora[4] research team as a strategic tool to assist in the operationalising of a well-being vision for Te Arawa. We expect the co-development process now initiated to continue for a year, conducted through workshops with Te Tatau o Te Arawa initially, and then with the wider Te Arawa (iwi kin) community, and to then transition into specific project-based workshops with groups engaged in building or infrastructure development projects.
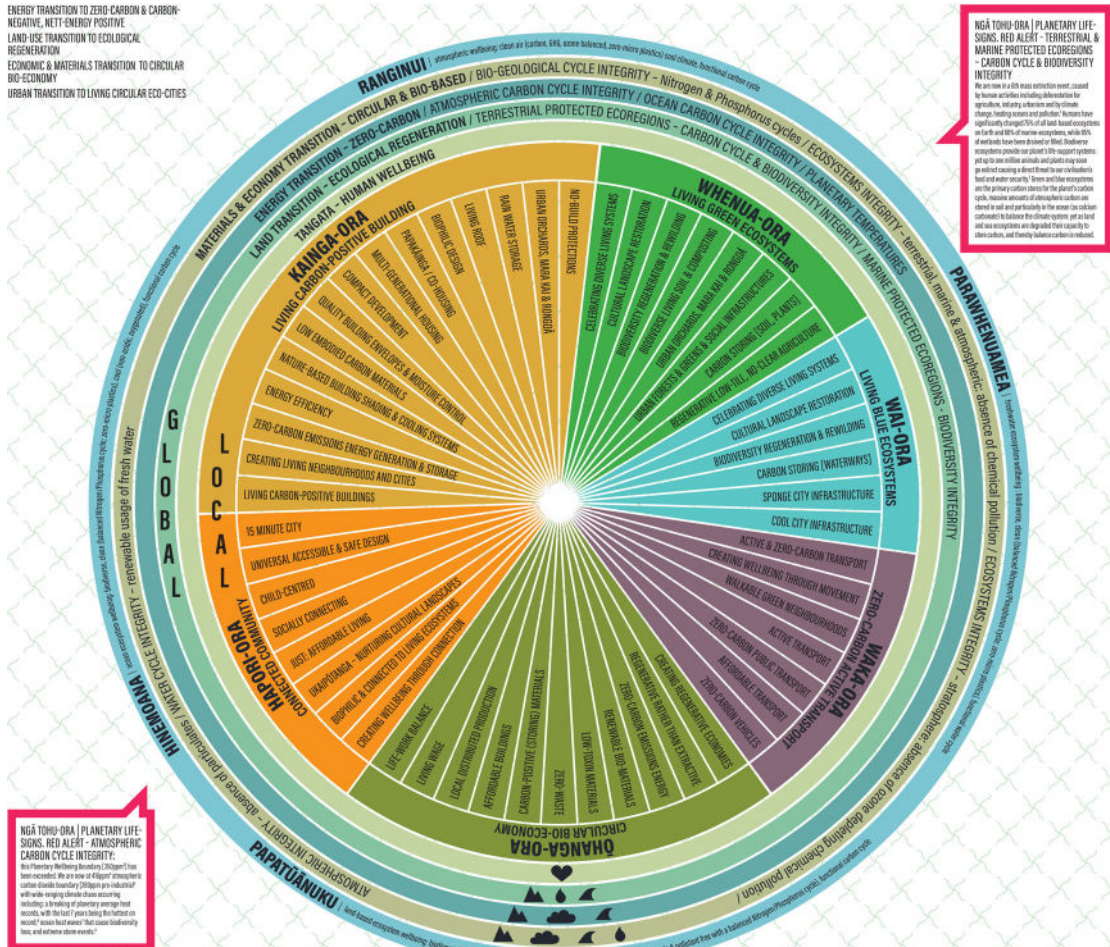
Initial workshops with Te Tatau o Te Arawa have been oriented by the recently published Te Arawa Vision 2050 (2020) which sets out the key strategic directions for Te Arawa communities, economy and built and natural environment to 2050. The Vision 2050 was co-created through workshops, interviews and surveys with Te Arawa kin. The Vision also focuses around mauri ora, holistic well-being, as a key strategic orientation for our communities, whanaunga (kin, human and more-than-human) and rohe (region). Te Tatau has chosen to co-develop a mauri ora navigator for housing and neighbourhood well-being as a key means by which to deliver the well-being-led housing strategy of the Te Arawa Vision 2050. Te Tatau will shortly begin to run workshops with hapū (smaller kin-groups) planning housing and neighbourhood development projects—the research group (many of whom are of Te Arawa) will contribute to this on-going tool development process (Figure 1).

FIGURE 1 Mauri ora navigator (kit of parts designers: Amanda Yates, Kyra Clarke & Fiona Grieve; Te Tatau navigator co-designers: Te Tatau o Te Arawa with Amanda Yates, Kyra Clarke and Fiona Grieve)

As a visualisation, the tool brings a range of complex conditions—local and global, urban, neighbourhood and housing infrastructures and ecological systems—together as a holism. As such, the design of the tool is an important representation and activation of Māori relational and connective ontologies. The visualisation uses a net-like graphic representation of mauri ora as life-field or life-system, and this establishes holistic well-being as critical context and foundation. The net is formed from interlinked spirals that echo cultural cosmological concepts and the swirling fluid patternings of atmospheric and hydrological entities as they are understood in Indigenous terms. A series of concentric outer rings define the critical global well-being boundaries necessary to maintain a vital life-field. The central field locates whaka-ora or local holistic well-being domains as a range of actions or approaches that enable local–global social, cultural, and ecological thriving. As with the data-display, the navigator aims to embed current vital data and contexts to democratise access to a complex and changing field of socio-cultural-ecological relationships, effects and affects. It does this in the static graphic through speech bubbles that aim to initiate a dialogic kōrero (conversation) around critical local–global well-being issues (Figure 2).

The tool visualises whaka-ora or holistic well-being domains of urban housing and neighbourhoods. Current key groupings include: kāinga-ora (built infrastructure); waka-ora (transport infrastructures); whenua-ora (green ecologies); wai-ora (blue ecologies); ōhanga-ora (circular bio-economy) and hapori-ora (communities). Strategic approaches for holistic housing and neighbourhood well-being in kāinga-ora (built infrastructure) include home-based zero-carbon energy generation and storage; socio-culturally connected housing typologies like papakāinga (whenua Māori (land) or urban-based collective housing models); low embodied carbon and locally sourced culturally important materials; biophilic design that links inhabitants to the living-world for human well-being benefit; nearby green or blue space, including māra kai and rongoā (food and traditional medicine gardens); and restoration of culturally important environmental entities, including ancestral awa (rivers), ngahere (forests) and ngāwhā (geothermal sites), such as those in Rotorua. While many of these well-being strategies are applicable across multiple iwi and other communities, the holistic well-being directions visualised here have been developed with the co-design partner Te Tatau o Te Arawa. The Te Arawatanga (iwi perspective or practice) or local ontology embedded within the tool and its design displays itself both through the selection of indices and the arrangement of the elements of the tool as an interrelated whole (Figure 3).

The interconnectedness of human and more-than-human well-being is core to Indigenous-Māori ontologies. Mauri is understood as a connective or binding force. Mauri is a foundational concept that situates interconnectedness and mutually dependent well-being as
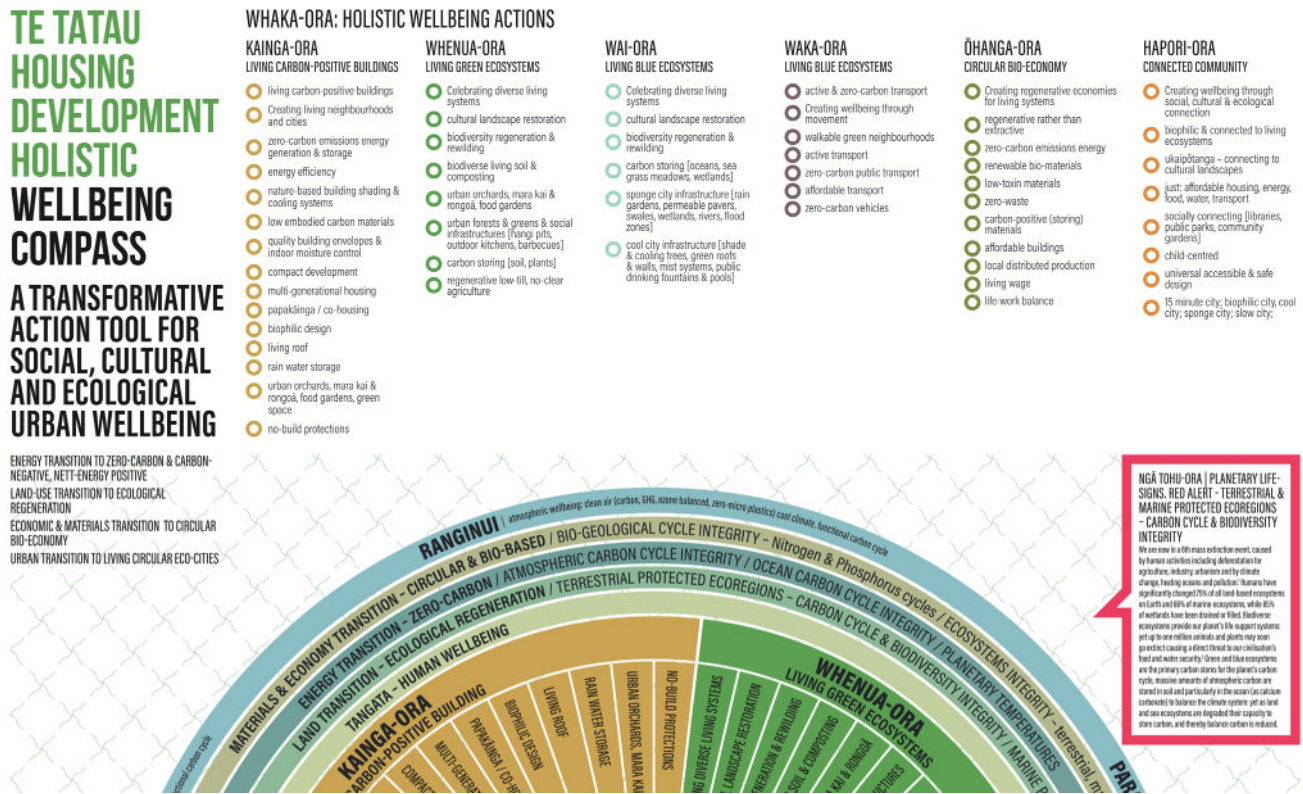

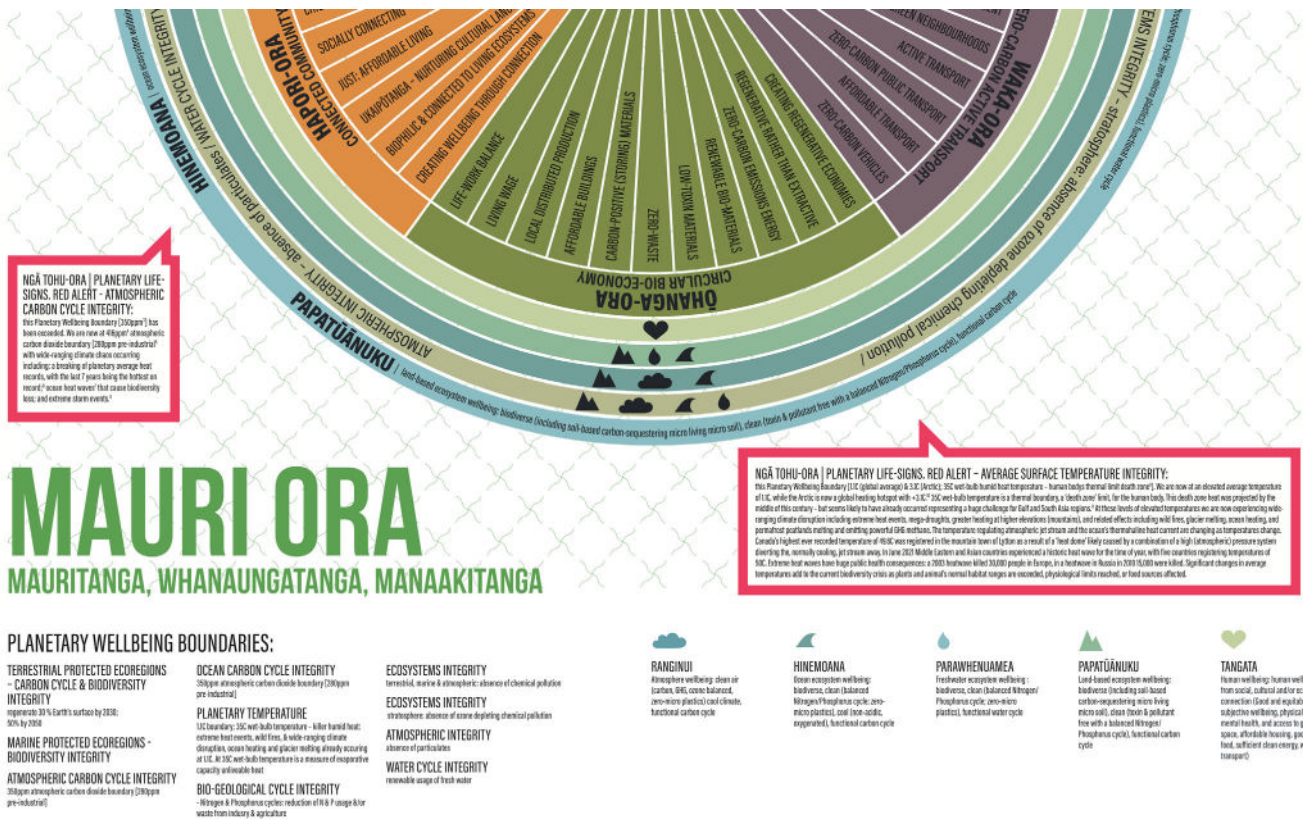FIGURE 2   Detail—Whaka-Ora or holistic well-being domains

MAURI ORA

MAURITANGA, WHANAUNGATANGA, MANAAKITANGA

PLANETARY WELLBEING BOUNDARIES:

FIGURE 3 Detail—planetary well-being boundaries

ontology, as the everyday vital living of more-than-human-beings. Activating connectivity is important for this tool as our capacity to achieve well-being gains at this time of complex ecological breakdown relies on our cognisance of the inter-connectivity of the life-system. A key register in the navigator then is the situating of local neighbourhood or urban actions (in the centre of the image) in a larger global well-being context (the concentric outer rings). The outer rings of the navigator depict planetary well-being "boundaries" (figure 3). These relate to the planetary boundaries (PB) model developed by Rockström et al. (2009), which describes key life-systems and indexes function or dysfunction. The rings are differentiated from the PB model by a positive well-being-based approach and encircling well-being boundaries that visualise an ontology of holism and connectivity over fragmentation. The boundaries are thus drawing more fully on Māori ontologies and mātauranga, while engaging with current Western environmental science to enable a productive well-being-led interface.

Furthermore, the boundaries relate to more-than-human entities that Māori understand as kin, such as Ranginui and Papatūānuku. Boundary concepts are reframed in relation to key causal mechanisms for well-being, rather the disconnected technicity of the PB model. For example, the climate change boundary is reframed as atmospheric carbon-cycle integrity, ocean acidification as oceanic carbon-cycle integrity, fresh water usage as water-cycle integrity. Ranginui (sky-entity) emphasises atmospheric well-being through zero-carbon and zero-waste practices (e.g., the reduction of ozone emissions or non-biodegradable petro-plastics production or aerosol loads), or carbon-cycle balancing through carbon sequestration (e.g., in wetlands, sea-grass meadows, living soil). Hinemoana (sea-entity) directs focus to ocean-system well-being, through changes in practices such as the adoption of zero-carbon and zero-waste practices, or the balancing of biogeochemical cycles (e.g., nitrogen, phosphorus or carbon). Parawhenuamea (river-entity) addresses the well-being of the global hydrological fresh-water cycle, establishing the relationship between vapour flow, rainfall, river flow, glacial melt, and water scarcity, and addressing practices such as reducing industrial-scaled land conversion and transitioning to a zero-carbon or carbon-negative culture. Papatūānuku (earth-entity) describes well-being achieved by shifts in approaches to land-based ecosystems. These include an emphasis on regenerating biodiverse and carbon-sequestering environments either at a macro-scale biome level (e.g., the Amazon), at a meso level (e.g., the urban), or at the micro-level of the soil microbiome that enables many life-system processes and sequesters vast amounts of carbon.

The introduction of approaches like regenerative agriculture is important here to rebalance biogeochemical cycles (e.g., phosphorus and nitrogen) that have been pushed past their limits by a linear petroculture. For the tangata (human well-being) PB—conceptualised as a subordinate layer within the larger more-than-human life-field—ecological and socio-cultural connection are key determinants. There is clear evidence for the importance of biophilia or ecological connection for human thriving and so an ecological or nature-based approach to cities and neighbourhoods is important here. There is also strong evidence of the importance of social connection and activation to combat current loneliness and obesity crises, in that there are multiple socio-cultural and ecological benefits to be found in urban initiatives such as active transport and walkable cities, or "third-spaces" such as community gardens and nature-based playgrounds.

In Aotearoa, an orienting principle is mauri ora, which is an exclamation and an invocation to the environmental entities and other-beings of this living-kin-world to be-well, and an ethical exhortation to us human-beings to practice-well. The navigator is intended as a transformative action tool that helps to scaffold action for holistic well-being-led culture change on the ground, in relation to environmental entities of Papa (earth), Rangi (sky) and the larger more-than-human community. The navigator is a relational ontology tool as it aims to establish more-than-human vitality and agency as an inherent attribute of this living-world. It is a well-being tool as it draws attention to social, cultural, and ecological well-being. It is a holistic think-do tool as it visualises urban complexity across a wide range of socio-cultural-ecological domains in relation to key well-being actions (such as a shift to a circular biodegradable material culture, or to carbon-sequestering infrastructures). Importantly, the navigator tool aims to register environmental beings, and the larger more-than-human community that composes the life-field, as agential entities whose well-being should be considered in every aspect of our urban practices. This ethical care practice is fundamentally at odds with the extractive economies of the Petrocene. As a culture change tool, the navigator aims to make an ethics of care for our more-than-human whanaunga (kin) the normative foundation for neighbourhood and urban life. In the following section I explore different approaches to practicing-well in a spatial governance and planning context.

3 | PERFORMATIVE GEOGRAPHIES

Spatial governance and planning activities—as the delimiting, coding and making of the places, spaces and ecologies within which we live—are performative (Butler, 1988) geographies in the sense that they enact or produce a socio-cultural system, in this case in spatialisations and relationships of matter, in intensities of activities, gatherings, economies, and infrastructures. Spatial governance materialises the ontological as it emplaces everyday environments. It also delineates and embodies our most foundational ontological framings as they pertain to living and becoming in or with the world. In settler-colonial states such as Aotearoa New Zealand, spatial governance and planning occurs within a legislative-institutional framework grounded in another place, with an episto-ontological regime radically other-to-indigenous. Planning—as politics, discourse, process and materialised outcome—is a key site through which such regimes spatialise and bring petrocolonial power structures and ontologies to ground. For example, urban planning around motor vehicles which involves delimiting vast areas of urban space for (mostly petrol-fuelled) cars, from which pedestrians are largely excluded, spatialises petrocolonial ontological norms such as erosion of urban public space, separation of work and home zones, individualised speedy transport for commuting, oil-based economies and geo-political structures and so on.

Such colonising spatialisation involves an active displacement of preceding indigenous socio-cultural-ecological relationships, a process J. M. Bacon characterises as "colonial ecological violence" (2019, p. 50) and Eve Tuck and K. Wayne Yang describe as "epistemic, ontological, cosmological violence" (2012, p. 5). Bacon (2019) emphasises how the institution of settler-colonialism produces and maintains intergenerationally enduring and disabling inequities between Indigenous and non-Indigenous populations. Settler states have developed legal reconciliation mechanisms in response to long-standing Indigenous claims for justice and redress for socio-cultural-ecological dispossession. Aotearoa-New Zealand's Te Tiriti o Waitangi treaty is one such instrument through which claims for redress can be sought. Land-use (rural and urban) planning is one of the key legislative-institutional regimes through which redress can be manifested (Porter & Barry, 2016). Yet such redress occurs within a legal framework radically other-to-Indigenous (Coulhardt, 2014; Whyte, Caldwell, & Schaefer, 2018). Regaining access to lost land and embedded eco-cultural relationships is one thing; being able to manifest those relationships again within a technocratic, extractive, petro-colonial system is a further maunga (mountain) to climb.

What would make that climb more possible? There are some important examples here in Aotearoa-New Zealand of hybrid legislation that, while situated within a colonising legislative system, manages to register or perform a radically different, more-than-human oriented ontology. The *Te Urewera Act 2014* is an important instance of this ontological divergence. Te Urewera is a

mountainous forest region to which the Tūhoe iwi whakapapa or affiliate. For 60 years Te Urewera was a National park until this designation was disestablished as part of a Ngāi Tūhoe Tiriti o Waitangi settlement. Radically, the Te Urewera Act positions Te Urewera outside of the extractive "resource management" model and instead affords this whenua-entity the rights, duties and powers of a legal person. Māori legal scholar Dr. Jacinta Ruru has characterised the Act as "legally revolutionary" (2014), both nationally and internationally. The *Te Awa Tupua (Whanganui River Claims Settlement) Act 2017* is another example of Tiriti-leveraged legislation that acknowledges more-than-human agency, in that it accords personhood to Te Awa Tupua, an ancestral river. Here the awa (river) is recognised as an indivisible whole that extends from mountain to sea as a physical and metaphysical entity (New Zealand Parliament, 2017). Gerrard Albert, the lead negotiator for the Whanganui iwi (kinship group), describes the legislation as an "approximation in law" but one that enables the river to be legally and transformatively acknowledged as an ancestor and engaged with as a living being (Roy, 2017).

The practice of achieving a legal personhood for environmental entities is one means by which the legislative institutions of colonial law can begin to converge with Indigenous norms. To date, this kind of legislation has been limited to Tiriti based Iwi claims. Introducing a mātauranga Māori governing concept is another way to indigenise spatial governance and planning frameworks in a manner that begins to leverage change. The Ngā Aho (Māori Design Professionals Network) submission to the Environment Minister for the Resource Management System Review adopted such a strategy. The submission proposed the adoption of a holistic well-being framework as a means of shifting from an extractive "resource" use or management mode to a mauri ora holistic socio-cultural-ecological well-being approach (Yates & Lenihan, 2019). The Labour-led government of the time had established a well-being "platform," as evident in its 2019 "well-being budget," the Local Government (Community Well-being) Act, and Treasury's new national well-being index, the Living Standards Framework Dashboard (The Treasury, 2019). Identifying holistic more-than-human well-being as the key orientation for a renewed "resource management" legislative framework would enable clearer coordination and operation across multiple levels of spatial governance, from the *Climate Change Response (Zero Carbon) Amendment Act 2019*, the *Local Government (Community Well-being) Amendment Act 2019*, to urban-level visions and action frameworks capable of landing strategy on the ground. Extending the conceptualisation of well-being from the human to the *more-than-human* is critically urgent at this time in order to produce, perform, and activate holistic well-being on the ground.

As this paper discloses, Māori are leveraging spatial governance and planning processes as counter-colonial tools to articulate and materialise our ontological realities. The Te Urewera and Te Awa Tupua legislation is powerful as it shifts national legal-frameworks towards more-than-human and well-being-led ontologies. Meaningful change in land "use" discourses and practices can begin to occur where more-than-human oriented legislation is supported by changes to spatial governance. This can be seen, for instance, in the urban co-governance model where Te Tatau o Te Arawa has a voice in Rotorua Lakes Council meetings. Shifts in processes, such as in the uptake of transformation tools like the mauri ora neighbourhood and urban well-being navigator, can help to make change on the ground. Here spatial governance and planning are organised not by a resource-oriented "land-use" modality but rather by an immanent and relational practice of care, an ethical attunement to how we can live-well-with the environmental entities and other-beings that are our whanaunga (kin). This "continuance" of connection is, as Whyte (2018) writes, a necessary part of the Indigenous experience of decolonising.

To care for the well-being of our more-than-human whanaunga (kin), and indeed to survive ourselves in this time of ecological breakdown, a wider decolonising of governance geographies is necessary. A shift in focus to holistic care and well-being, as a landing of Māori ontological frameworks into spatial governance, is strategic at this time and also just. Emphasis needs to be directed towards causal factors and transformative actions. Communication needs to be clear and holistic to scaffold changes in the wider culture's understanding and practices towards this living-world. The mauri ora holistic well-being navigator is being developed as one means to enact, produce and perform urban geographies of and for more-than-human well-being. In the next section, I discuss a wider shift in more-than-human geographies.

4 | PERFORMATIVE ONTOLOGIES

For Indigenous-Māori, a geological entity, Papatūānuku (earth-mother), is a primordial parent. With Ranginui (sky-father), the earth-entity is positioned in cosmogonical narratives as the progenitor of life, as and on this living-world. All of our more-than-human whanaunga (kin, including humans) originate from the earth and its atmosphere. In Māori ontologies, the fundamental condition of living is that of whakapapa (multi-species lineage) and whanaungatanga (more-than-human kinship). Such kinship is expressed in the concept of mauri, as a life-field whose well-being comes from its connectivity (Yates, 2017, 2019). In Māori ontologies, holistic well-

being is a fundamental characteristic of living-ness and extends not just to what Euro-Western ontologies have understood to be biotic or "alive," but also to other environmental entities—such as rocks, atmosphere and climate—which to date have largely been positioned in the "inanimate" or not alive pairing of the Cartesian binaries that structure Euro-Western ontological framings of life. For us, everything is part of a vital life field—mauri—and all is interconnected as part of a relational whole. There is no separation: all is immanently related. Our ontologies are already "more-than-human" and ecologically grounded. In recent times, following an ontological "turn," Euro-Western thinking is beginning to follow suit. If we understand that ontological frameworks are performative, that socio-cultural structures enact and reproduce themselves through words, non-verbal actions and materialisations, then this turn may be more widely productive. In what follows I briefly review this (re)turn in ontology.

Under the pressure of the Petrocene's radical disruptions in earth ecosystems, the normative frameworks and assumptions of petroculture are showing signs of "ecologising," as Bruno Latour (1998) describes it. A so-called ontological "turn" is propagating through the Euro-Western discourses located at the epi-centre of petro-capitalism. This is a turn towards the ontological *and a turn in* ontological thinking, away from the Euro-Western individuated and superior human subject. It is a turn towards an understanding of ecological enmeshment (Bryant & Joy, 2014) as being-with or "becoming with" (Haraway, 2008) a more-than-human multi-entity community. In human geographies, this re-orientation has brought geographic discourse into closer proximity with Indigenous territories. Sarah Whatmore's influential *Hybrid Geographies* (2002) challenged Euro-Western conceptual norms, rejecting Cartesian binaries of human/non-human in favour of the concept of a human/non-human hybrid that acknowledges that we humans are always already materially enmeshed with this living-world. As Phillips and Atchison (2020) discuss in a paper on urban greening, urban futures rely on a transformative reconceptualisation of the city as always already more-than-human. Here the entities that together co-produce and materialise the urban in all its registers and forms must be understood as "more-than-services"! Panelli and Tipa (2009) have described the more-than-human context of particular iwi (Māori kinship group) food practices. More recently Larson and Johnson (2017) have characterised indigenous understandings of the co-relation of human and non-human communities as a being-together-in-place. Recognising convergences between contemporary human geography and Indigenous ways of knowing, Vincent Clement (2019, p. 289)

has called for geographers to no longer position Indigenous ontologies as "outside" or "peripheral" but rather as with-in, "as part of the 'theoretical corpus' of human geography on the basis of adjacencies in, for example, current reflections on revisited concepts (place, space etc.), criticism of binaries (nature and culture, space and time, human and non-human, mind and body, etc.), and new epistemological trends such as exploring imagining more-than-human geographies." These convergences have not been without Indigenous critique, however.

In a much-viewed paper, Indigenous academic Zoe Todd has laid out the challenges of this convergence (2016). After attending a lecture by Latour invoking the "ontological turn" and climate as "cosmopolitical concern," Todd notes how analogous such thinking was to Indigenous understandings of sentient climates. She also remarks how familiar it was to see a Western academic speaking of more-than-human agency without any reference to ancient Indigenous ontologies founded on such thinking:

> "the Ontological Turn—with its breathless 'realisations' that animals, the climate, water, 'atmospheres' and non-human presences like ancestors and spirits are *sentient* and *possess agency*, that 'nature' and 'culture', 'human' and 'animal' may not be so separate after all—is itself perpetuating the exploitation of Indigenous peoples ... (w)hen anthropologists and other assembled social scientists sashay in and start cherry-picking parts of Indigenous thought that appeal to them without engaging directly in (or unambigously acknowledging) the political situation ... we immediately become complicit in colonial violence. When we cite European thinkers who discuss the "more-than-human" but do not discuss their Indigenous contemporaries who are writing on the exact same topics, we perpetuate the white supremacy of the academy" (2016, p. 18).

Here Todd's call is to acknowledge and cite influences and convergences and actively engage in more inclusive discursive practices and relationships. Of course any positioning of Indigenous ways of knowing into or alongside colonial epistemologies should always be led by and for Indigenous peoples, as Clement also argues. In the context of Geography, such a convergence destabilises existing discursive structures and categories—such as "Physical Geography" and "Human Geography"—as it comes to ground in a "place" understood as being

comprised of a diverse array of more-than-human whanau (family).

From an Indigenous perspective, the process that Latour describes as ecologising might be better called "geologising," as awareness turns to the agency of earth, of environmental entities and other-beings that constitute this living-world. The linear industrial logics of the Petrocene are turning, becoming more circular or helical. At this time of ecological crisis it is critical that this is not one turn of many—yet another shift in intellectual and epistemical fashion—but rather a foundational shift, a cultural paradigm shift. The silos and separations—nature/culture, human/non-human, animate/inanimate—of industrial petroculture are conceptual rather than actual. In fact, in the material world, the colonising ecological damage of the Petrocene knows no bounds. Industrial petroculture's harm is both local and global and is incommensurate with Indigenous and earth well-being, wherever it manifests.

If we understand the performativity and the productivity of ontologies, then we can see that this ontological turn may begin to produce change more widely, including in how settler cultures understand themselves in relation to the more-than-human, *and* how they govern and spatialise their activities in relation to the more-than-human. Indigenous-Māori framings understand both our kin-ship to the more-than-human and the agency of these entities. Much of the recent Euro-Western turn emphasises the vitality, the liveliness of the more-than-human without an overt engagement with an idea of kin-ship or the contemporary science which establishes the shared ancestral lineage of all biotic or "living" organisms on the planet, including us humans, and traces us to a last universal common ancestor. Yet in a geographical imagining on multi-species ecojustice, Haraway (2016) calls for a future, some hundreds of years from now, where we "human people" practice well-being with and for our (multi-species) earthling-kin. In making this call for being-well together with more-than-human kin, Haraway is, from her place, voicing an ecologising-geologising imaginary that resonates well with ancient Indigenous-Māori ontologies of more-than-human care and builds a collectivising ethic for change.

The transformative act of culture change—deconstructing industrial linear logics and petro-cultures, landscapes and structures—is a process that requires the engagement of diverse communities. The life-system of this living-planet is radically inter-connected and inter-dependent, and we must connect in the same way: building networks, and seeking appropriate and non-appropriating Tiriti (Treaty) allies as part of ecologising-geologising culture change. This is the time to be acting locally but also building wider collectives, regionally, nationally,

internationally. It is time for a re-turn to Indigenous and place-based ontologies that preceded industrialisation and have resisted petrocolonialism. It is time for Indigenous and traditional ecological cultures to lead a wider shift in cultural–physical geographies. Such a turn will reduce current barriers to more-than-human care and will establish a more fertile ground for spatial codes, practices and processes of more-than-human care that perform Indigenous and place-based ontologies.

5 | TRANSFORMING GEOGRAPHIES THROUGH ONTOLOGICAL CHANGE

If Māori ontologies of more-than-human care were to be performed and reproduced through spatial governance and planning processes, we would see radical change in how our homes, neighbourhoods and cities enact more-than-human care and socio-cultural-ecological well-being in Aotearoa. Writing on Indigenous futures, Glenn Coulhardt signals the importance of an indigenous activism, a transformative process that involves "critically reevaluating, reconstructing, and redeploying Indigenous cultural forms in ways that seek to prefigure, alongside those with similar ethical commitments, radical alternatives to the structural and psycho- affective facets of colonial domination" (2014, p. 48). Māori have long been acting locally in our rohe (region), on our whenua Māori (Māori collectively held land), and in our various roles—in governance, as activists, as educators—to shift the politics and cultures of our local–global geographies. And these changes are now registering not just in those areas held specifically by Māori, but also more widely, including in the way that we attend to river-entities like Te Awa Tupua. Te Tiriti commitments to tino rangatiratanga (sovereignty) should be registering in this way, shifting how we live-with the life-field, how we engage with river-entities, with sky and sea-entities, with place-kin. Te Tiriti obligations should now be registering in the urban fabric of our ecologically-integrated cities, in more-than-human urban landscapes that are biodiverse and generative (of food for humans and other-beings, of clean water, of oxygen, of renewable energy) (Yates, 2008, 2010, 2017). This is a massive and necessary change in physical and wider cultural geographies that is inherent to indigenising initiatives. A stable climate, clean air, clean water and biodiverse eco-systems can only be achieved through wider cultural changes, including in spatial governance and planning frameworks.

In addition to new approaches to more-than-human oriented governance and legislation we also need innovations in how this legislation is spatialised on the ground.

Transformative tools and processes are necessary here to enable, perform and produce change. Ideally these processes should be iterative, dialogical and democratic as they involve place-based and citizen-led approaches (Pickering & Persson, 2020). The work of transforming cultural and physical geographies takes time, to build communities of change, to test strategies, to embed new approaches. It is expedient and appropriate to build wider collectives to accelerate transformation processes.

For this research, the PB concept (Rockström et al., 2009)—which identifies key earth-systems and the degree to which these are functional, degrading or in crisis—has been important. Recent critiques have noted that this concept can be alienating to the global south (Bierman & Kim, 2020), however, while others have emphasised the importance of meeting PB within an ecological democracy model (Pickering & Persson, 2020). We have worked with a PB concept but have reoriented it towards more-than-human entities, with a more complex connectivity and a place-based community as is appropriate for Indigenous-Māori ontologies. The recent launch of the Amsterdam City Doughnut (DEAL, 2020)—a place-based transformation tool that aims to increase socio-ecological thriving at a city scale, with local and global contexts and a city council partner—is also highly relevant to this research. A speedy proliferation of such place-based approaches to holistic thriving is necessary to improve more-than-human well-being at this time of local–global ecological emergency.

While we are in the initial stages of this research and the collaboration with the Te Tatau o Te Arawa governance group, there is evidence that this navigator is already enabling transformative analysis, dialogue and action. The Te Tatau o Te Arawa choice to develop a Housing & Neighbourhood Mauri Ora navigator as a tool to help deliver the Te Arawa Vision 2050 Housing allows Te Tatau to communicate their vision for holistic well-being in detail, and in a holistic mode that shows the inter-relationship of cultural, social and individual well-being with ecological or more-than-human well-being. As a decision/delivery tool, the navigator allows Te Tatau to communicate their vision and expectations to developers, government bodies and others in spatial governance territories. An initial Te Tatau hosted workshop with Kāinga Ora (a state housing crown entity) acknowledged the capacity of the navigator to productively refocus discussion from housing to a wider engagement with social, cultural and ecological well-being at a scale of homes, neighbourhoods and larger ecological systems. The holism of the tool—as it addresses local urban actions in a global well-being context; and buildings and neighbourhood and ecological infrastructures in a context of community connection and circular bio-economies—enables care-based governance and planning decisions and actions to be communicated and performed. Te Tatau will now begin workshops with those hapū (small kin-groups) or other groups planning housing and neighbourhood developments. The Huritanga Mauri Ora research group (many of whom are of Te Arawa) will contribute to this on-going tool development process. Te Tatau and the Huritanga research team will also begin to collaboratively document this ongoing co-design process with the Te Arawa community.

The mauri ora navigator brings Māori ontologies into settler-colonial spatial governance frameworks through performative discussion and collaboration (and potentially then into urban spaces, as new developments are built). In this way the tool is already performing and producing an Indigenous socio-cultural-spatial system in which more-than-human care is a normative orientation for cities, neighbourhoods, homes and everyday living within the local–global life-field. This paper has described the beginning of a well-being led research collaboration that aims to embed Indigenous ethical practices for more-than-human care within spatial governance. A Māori earth-oriented-ontology laid the conceptual foundation for the holistic mauri ora tool explored here. Here the more-than-human are kin and holistic well-being is a primary orienting ethic. This collaborative project has critical resonance in this time of socio-cultural-ecological crisis. It is time now to collectively transform our geographies and our spatial governance practices so as to enhance mauri ora as social, cultural and ecological well-being.

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ENDNOTES

[1] The National Science Challenges are nationally strategic research programmes funded by the New Zealand government. The Building Better Homes Towns and Cities challenge is specifically focused on the urban, with a range of programmes addressing housing provision, housing quality and urban well-being.

[2] Te Tatau o Te Arawa is a Te Arawa co-governance group linked with Te Kaunihera o ngā Roto o Rotorua, the Rotorua Lakes Council. This governance model is notably innovative and powerful, as it brings a collective Māori voice into city decision-making processes. Contributors to the Te Tatau o Te Arawa navigator co-development process include Jude Pani, Jenni Riini, Monty Morrison, Te Taru White, Geoff Rolleston, Rawiri Waru and Lauren James (along with the Huritanga Mauri Ora team).

3 Rotorua is a city in the North Island of Aotearoa. It is the country's 12th largest urban centre with a population of around 60,000. Rotorua means the second lake, and the city takes its name from the lake around which it is formed. Lake Rotorua occupies the Rotorua caldera, created by a major eruption some 240,000 years ago. The city's largest industry is tourism, with visitors attracted by the combination of geothermal activity, Rotorua's status as a centre of Māori cultural activity, and a range of outdoor activities, such as mountain biking.

4 The Huritanga Mauri Ora—Rotorua team is composed of researchers from university and research institutions. The key members and their iwi or tribal affiliations are Professor Angus Macfarlane (Ngāti Whakaue), Dr. John Reid (Ngāti Pikiao), Dr. Jay Whitehead (Ngāi Tahu, Ngāti Māmoe), Grace Walker (Ngāruahine, Ngāti Kahungunu), Dr. Rita Dionisio and Associate Professor Amanda Yates (Ngāti Whakaue, Ngāti Rangiwewehi, Te Aitanga a Mahaki, Rongowhakaata). The collaboration with Te Tatau o Te Arawa is consequential, as many of us are kin. This brings a particular warmth, meaning and connection to the collaboration process.

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