ETHNOGRAPHIC EDGE

Volume 7, Issue 1, 2024

Environmental Ethnography: What do you mean, ethnography is not about people?

Edgar Burns
University of Waikato, Aotearoa New Zealand
Edgar.burns@waikato.ac.nz

Abstract

Environmental ethnography is discussed here from involvement with a local government authority in Aotearoa New Zealand focused on soil, water and land management. Climate change and environmental degradation are making such local government work more difficult and expensive. As costs trend upwards and new rules are applied, community challenges to local authorities increase. Environmental ethnography identifies constraints on the organisational ability to meet infrastructural needs to produce environmental solutions locally. Some constraints are internal (organisational), some are local (community beliefs and attitudes), but the most significant constraints are external to local agencies. In ethnographic terms, working with local and national environmental authorities is a process of learning from staff, scientists, and administrators. Māori and Pākehā communities' efforts to manage their local destinies provide insights into pressures on local government organisations. Landowners' expectations and politicised discourses of climate denial or deferral also constrain day-to-day local authority work. Three intersections of local authority organisations' actions and local communities' responses emerge from reflecting on this ethnographic learning, each shaping what local authorities can achieve. First, the social is not another set of insights; rather, the social is in the science. Second, in Aotearoa New Zealand the familiar nature-society binary is usefully disturbed by mātauranga Māori understandings of people and the environment. Third, changing modern productivist attitudes towards the environment is more than local—it is national and global—yet people's responses are also intensely local. Environmental ethnography helps illuminate such tensions that create organisational and community dilemmas for local government authorities.

Key words

Agriculture; climate change; environmental ethnography; environmental damage; Māori knowledge; local government; wetlands.

Introduction

Environmental ethnography is a trajectory of learning. The present ethnographic reflection comes from daily work in a partnership role between a regional local body, university and national bodies with environmental responsibilities in Aotearoa New Zealand. For anthropology and sociology, a key ethnographic principle is that knowledge grows from everyday activities, routines and practices, which together constitute the data for analysis and

reflection (Hammersley & Atkinson, 2007). Here, this has involved observing locally focused regional authorities discharging their responsibilities for the biophysical environment across a mixture of towns, farmlands, horticulture, coast, and mountain ranges. This has shown multiple intersections between research, knowledge production and the flow of daily events, procedures and rituals in organisations and communities (Rudnicki, 2023). Rather than creating abstract theories, the ethnographic focus was on local events and practices to gain insights into local government and environmental work.

Environmental ethnography

Environmental ethnography is two things: a process of learning and the written product of such learning. It involves hearing and seeing the lived world in its local environment, a mix of informal and official interactions and practices, regardless of the initiating research question. Scholars sometimes point out that ethnography, like a microscope or telescope, draws the distant or unfamiliar near or brings the invisible into the range of our perception. For example, Dumit (2004) considers what changes might be made in science and technology, while critical realists (Decoteau, 2017) or social constructivists (Williamson, 2006) bring alternative perspectives to their ethnographic observations of the world via the data gathered by observing and participating in everyday lives. According to Madden (2010, p. 184), "Being ethnographic… is still as relevant a way to understand the human condition as it ever was."

In contrast to quantitative research, ethnography's methodological distinction is that the human researcher is the instrument. Environmental ethnography entails paying attention not only to humans, but also to natural entities. This leads to new (bio)ethical and empirical strategies in observing and participating. Conventionally, an ethnographer learns to see people through motives, expectations, rituals, communities, cultural practices, beliefs, and networks. Through these social technologies, human agents make up their minds and change them. Environmental ethnography observes and participates with not just people but also things like soil, mountains, trees, farmscapes and forest-scapes, travel routes and water catchments (Cain & Scrivner, 2021). The ethnographic question shifts to how these non-human things respond and exercise the agency of the environment, thereby impacting the agency of humans (Schneiderman, 2016).

Human-to-human interaction is central to ethnography: tête-à-tête in French frames primary modes of interaction, or in the Māori phrase kanohi ki te kanohi describes literal face-to-face meeting and communication. Environmental ethnography elevates the biophysical place of people in their lived settings and the human need for nature as essential for human society—food, water, warmth, shelter, and communication. Literal interactive distances may also be much greater; today, it includes digital interaction. The era of the anthropocene, humans impacting the planet, is also the era of digital connection (Jennings & Hoffman, 2021). The lived experiences at the centre of ethnographic exploration are increasingly seen as predicated on understanding the environment as central to being human (Walton, 2018). For Shaffir (1999, p. 677) this "subjective component of ethnography" is its gift rather than striving to be more scientific. Environmental ethnography posits that studying humans without attention to their natural environment is an ethnography from a previous century.

Environmental ethnography is also the product of engaging with the world to bring to the surface the human and environmental conditions. Undergraduates may absorb this idea when academics tell stories about ethnographic research. Tales of success and woe, writing and losing field diaries, obstacles in translation and terrain. At worst, they learn stories like the death of Rosaldo's (1986) partner on a Philippines field trip, leaving him with two young boys. From the tumult of the field, emerges the written text; in western-centric framing, this is an

account of some distant, little-known community. Today, the completed text may be an account of one's own society of origin, bringing fresh insights into groups or communities to whom little attention has been paid. It may be like Whyte's extended "hanging around" (Shaffir, 1999, p. 677) on Boston streets and pavements in Street Corner Society, or an ethnography may "defamiliarise the familiar" (Bauman & May, 2019, pp. 6-9). Where is nature, and where is the environment in those ethnographic accounts?

Ethnography to environmental ethnography

Contemporary ethnography may shift from "that" exotic society to "our" own society, and further shift focus to problematise what we are doing about our environment. Research like Chagnon's (1984) Yanomamo can be viewed through ecological debates about the Amazon rainforest as a theatre of nature, rather than a western-centric study of tribal communities in the "jungle." My broad interest here is discerning narratives that chronicle shifts in climate and environmental understanding and practice. On the one hand, gathering building blocks that could be part of any ethnographic account. Doing this, however, in such a way that this is not describing a cultural "other," but describing the naturalised underpinnings of the daily and mundane in western-type societies that significantly suppress environmental and climate knowledge.

Seeing how a local authority engages with its physical environment as it interacts and serves the local community, but under central government regulations, raises complex issues. The organisational experience of a regional authority mandated to apply scientific knowledge to the local environment in a western-type country reveals tensions between science, national expectations, and parochial commitments. This nexus is at once very local, but it also points to humanity's much larger extra-local narrative—sea-level rise, climate heating, and degrading soils and rivers where humans live and farm. This is the case in one form or another for almost every place—every locality—on the planet. In the anthropocene era (Ellis, 2018), nature and the environment are explicitly or implicitly central to the work of local authority staff at all levels, using what Williams et al. (2020) call a fifth kind of "environmental capital" along with more familiar forms of social, political, human and financial forms of capital.

Environmental ethnography asks how local routines reflect or otherwise respond to the existential drift undermining ecological boundaries at local and terrestrial scales that humans need to keep safe (Richardson et al., 2023). The richness of the intersection between humanity writ large and society locally instantiated produces ethnographic traces like an x-ray silhouette. These include beliefs, attitudes, feelings, knowledge (or lack thereof), and practices at different levels of cultural embeddedness in different sectors. Ethnography today operates within the discursive shift from climate denial perpetuated by vested corporates, lobbyists, and political capture (Bregman, 2020; Mitchell, 2011). As the general populace moves away from this stance, it faces new difficulties of "Who, me?" of needed personal changes. Ethnographic approaches consider local human responses to climatic and environmental failure, facing the macro-scale impending threat to how humans live.

Thus, Madden (2010) states that being ethnographic gains new depths of meaning since the environment is both a way of seeing the world and being part of that world. Ethnography and being human revolve around each other; climate change means that environmentally, we are all insiders now, even if we don't know it. Not all believe this or have yet to understand the connections, seen, for example, in Aotearoa New Zealand parliamentarian Maureen Pugh's overnight U-turn from climate denial to accepting a right-of-centre official line against denialism (Patterson, 2023). Today, this way of being in the environment is changing; local

communities' talk is insufficient, and lifestyles and economic practices will have to change drastically. Regardless of the cancer of denialism, it is not within any local or individual human agency or government's ability to control climate change. The new context for ethnographic inquiry is the anthropocene, whether consciously climate-focused or otherwise (Brown, 2023).

The planetary environmental situation continues to be present even when humans pay scant attention or interest to climate warming and environmental degradation (McNeill & Engelke, 2016). The urgency of such realities intrudes more each year, pushing what constitutes environmental ethnography into more and more circumstances in which people make decisions professionally and organisationally that affect their own and their communities' lives. Bradbury's (2022) compendium of action research studies and principles makes the same point for all social research, "examin[ing] agents of change who are also subjects of change."

The local and national government organisations I have worked amongst are increasingly caught in an invidious clinch between the growing momentum of climate change and delayed whole-of-society action (Steffen et al., 2015). Practical policies are needed and are continually being talked about. Some are tried, including local actions around farming, carbon sequestration, terrestrial heating, biodiversity loss, resource use overreach, degradative water and land use. Seawalls, stop-banks, and planning for an unknown number of metres of sea-level rise for coastal communities still do not address the long-term changes required. Once again, these shifts are beyond any one local authority. Reframed policies and politics are needed to collectively redirect human activities and communities nationwide and globally. Each sphere of action deserves ethnographic attention (Hawken, 2021).

Local authorities: In the lived environment

Below the level of national or state organisation, local authorities are tasked with giving practical expression to policies in the local context. In Aotearoa New Zealand, the central government increasingly expects local authorities to fulfil national changes, but significant under-resourcing is now becoming apparent due to environmental deterioration. For financial and historical reasons, local authorities' property rating income system means strong local demands to meet the needs or interests of companies, communities, and vocal local sectors in competition with national mandates in new or revised environmental regulations.

Practical involvement in the issues and concerns of geographic regions by each local authority organisation covers many facets of water availability, quality, erosion, drainage, afforestation, pest control, invasive plants, and constructing and maintaining river stop-banks. This work turns out to be no barrier to deep questions about human wellbeing or to philosophic reflections about human nature and our human future (Naess, 2011). But it is difficult to develop these either with the community or internally among staff, given the daily exigencies requiring practical action now. Community and technical people tend to focus on what they are doing—the what and how rather than the why. Also, staff in environmental business units in local authorities are more receptive to information about climate change than staff in units charged with functions such as clearing and maintaining drains.

It is a stop-and-start process to articulate the links between environmental language and social and political concepts—what joins them when they have not been joined before? Terms such as "sustainable" or "net zero" from the corporate sector easily become taglines and greenwashing even for serious local government authorities. A function of ethnographic inquiry is to trace instances of the relationship between environmental discourse and other societal narratives and how they play locally. Organisational practices, decisions and communication strategies are animated by current societal ideas and assumptions about the

environment, shaping what and how the work is done. Even while staff have deep scientific knowledge, this may be very different from the beliefs and understanding of members of the local community or national politicians.

Environmental concepts come from many branches of science, politics, and ecology. How can they be used by scientists and field staff to communicate the imperatives of protecting soil, water and biodiversity in response to public-voiced opinions? These ideas occupy a liminal reality beyond conscious local practice to some extent. They also result from local events that speak to wider environmental or cultural issues. Pākehā (non-Māori) New Zealanders have a strong belief in hard work, proprietary rights and, until recently, the assumption that being a good farmer was also good for the land and the nation. Māori New Zealanders hold a strong belief that "The land alone endures," a self-identification of being tangata whenua—people of the land, and a world view, Te ao Māori, that we are part of nature. Dominant models of land use resist these Indigenous values yet correspond with contemporary climate and environmental science.

Making progress on exposing discrepancies or incorporating provisional answers to practical dilemmas is more complex than Giddens' (1982, pp. 21-22) notion of a "double hermeneutic," although also emerging from everyday experience in stressing the importance of commonsense definitions of situations. Rather like invisible transmissions around us that require a radio to *hear* and understand them, the contention is that regional and local government authorities also create/give off ethnographic data, too, all the time. It is a matter of tuning in ethnographically to link this to the climate and environment messages we need to build about how we as humans will live and adapt in our much hotter local homes.

Like the natural environment, ethnography draws us into a world of richness that otherwise we may not notice and may not realise the importance of what it teaches us. Local communities and regional organisations concerned with the environment will be at the "pointy end" of coping with climate change in storms, floods, and events such as Cyclone Gabrielle in February 2023. But they do not create a broad public discourse. They respond to it, rearticulating the wider public and political discourse from a parochial positionality. Sometimes, this may create counter-narratives within the larger political or geographical frame or even between cities and sub-regions. Sometimes, a local government authority resists or opposes interpretations from the community or some sections of the community. Sometimes, citizens do not understand the extra-local implications of what they perceive in local terms as a threat, imposition, or unfair treatment.

Methodological framing ethnography and environment

Understanding the practical worlds of local authorities requires a deepening pursuit of ethnographic inquiry into living responses to environmental issues (Görg et al., 2020). Even traditional humanities fields are feeling their way in this direction. See, for example, Admussen's (2016) "Six proposals for the reform of literature in the age of climate change", which begins with a story about listening to ordinary people, even in the stories people make up since "All fiction is anthropocene fiction now" (Bradley 2017, para. 16). Concerns about the coloniser's footprint, resource extraction, labour exploitation, inequality, gender and sexuality, justice, and politics. All begin to shift under a common global pressure experienced locally.

Each local community's stories and practices are re-articulated in various ways in relation to the environment. Commonly, this implicates deterioration of the basic elements for healthy lives, the opposite of sustainable wellbeing for the whole planet's population, apart from elites

(Rajala et al., 2023). One summary of this new social focus on the environment is Thaler's (2021, p. 122) argument that: In bringing ethnography to the growing urgency of environmental loss and climate disruption, he identifies "three methodological approaches… place-based ethnography, institutional ethnography, and organizational ethnography":

> Ethnography provides essential insights for environmental politics research. With participant observation as a foundational method and a focus on context, meaning, and everyday practice… ethnography promises a fuller and more nuanced understanding of how actual resource/environment decisions are being made, by whom, for whose benefits, and within the contexts of what power asymmetries…. These approaches are distinguished by how they define the 'field' where the ethnographer works. These distinctions are heuristic, and many ethnographies hybridise or transgress these categories. However, these ideal types help to clarify how different methodological approaches to the field determine important aspects of ethnographic practice and enable different kinds of insight into environmental governance. (Thaler, 2021, p. 122)

An ethnographic perspective means watching for emerging public awareness of environmental deterioration and incipient climate change every day. Reading and writing about this is abstract and general, but during work hours, evening hours, and weekend events and meetings, the presence of the environment is concrete and practical. Participants in civil society and the public sector, including local government board members and staff, engage repeatedly with community members and groups. Each group grows in understanding and expressing how these new realities will mean difficult decisions, but some are too hard to contemplate.

From a different perspective, White and Wolfe (2022, p. 3) espouse a similar sense of purpose:

> [A]lthough the ecological crisis is clearly a biophysical process, involving questions about carbon dioxide emissions, and drawing upon knowledge from fields such as ecology and geochemistry, it also provokes questions about the viability of alternative energy technologies that rely heavily on knowledge from the disciplines of engineering and economics. In addition, understanding the causes of, and lack of effective responses to, climate change thus far clearly requires knowledge of the numerous sociohistorical, political, psychological and educational factors at play.

Clearly, ethnographers will not be out of work any time soon (Fenemor et al., 2011).

The local government of the biophysical environment is very different from that of several decades ago (Knight, 2009). Currently, it is in the process of undergoing highly contested new rounds of changes in responsibility, funding, organisation and bicultural governance across Aotearoa New Zealand. The 1991 Resource Management legislation created in a neoliberal era never adequately protected the environment, allowing accelerated ecological damage to the landscape; it has been proposed to replace it with three separate pieces of legislation. Three Waters legislation was also proposed to address multiple quality, reticulation and catchment management deteriorations evident across regions for drinking water, wastewater and stormwater (Department of Internal Affairs, 2022).

These national-level amalgamation plans received staunch opposition from many local communities around the country, which were protective of their existing rights. The proposals have been killed under a new government, but the climate and environmental realities will inevitably require a politically expedient version of similar proposals. For some years now, however, as regional authorities and other local bodies have grown aware of environmental

and climate changes, the projections put the costs of administering existing and soon-to-be-needed services beyond local regions' resources (Palmer et al., 2020; Baker, 2022). Local authorities face the burden of unrealisable community expectations to fix climate issues—storm events, heat, rain, and flooding. As these disasters intensify in the coming years, rates and costs will explode, stretching even national-level responses.

The anthropocene changes organisational work

Ethnographically speaking, the "unfinished business" of documents produced and exchanged, conversations, meetings, and conflicting or mixed feelings of staff and community coming to terms with the immense climate changes growing each year appear in three final points of reflection here. From many interactions and conversations with knowledgeable, motivated, and action-oriented people, the background reflection in this article is the title's question about environmental ethnography: 'What do you mean, ethnography's not just about people?' Asking this invites repositioning ethnography as environmental ethnography. It can be seen in what shapes, channels and hampers the work of local government staff, local decision-making and local strategic planning for the future.

The last section of this article recounts ethnographic learning that connects three on-the-ground practices that are active areas of change in local authorities' environmental work. These bring together changing priorities as a window into societies' hesitance about environmental change: the social is in the science, not something else; the importance of listening to what Māori culture and knowledge is bringing to national environment debates and pushing Pākehā culture for environmental change; the literal and symbolic meanings of treating and regulating the farm and forest landscapes, from referring to swamps as a problem, to understanding wetlands as a core environmental resource.

The social is in the science

All regional local government authorities in Aotearoa New Zealand have a contingent of scientists on their staff. These people have trained across disciplines such as ecology, hydrology, geology, coastal science, and other fields. Their expertise utilises specific vocabularies to express their work. Their disciplinary fields of expertise are more and more configured in interdisciplinary crossovers of expertise used to address local, social, and community issues around health, water quality, dams, irrigation, and seawalls. They use terminology like "marine", referring to oceanic and coastal places, distinguishing between offshore, where sediment is deposited from human-caused erosion, and deeper oceans, where tuna/eels go to reproduce. These scientists often frame the lived environments of local communities as "estuarine," the interface between lowlands and sea; "riverine", to document waterways and land systems affecting agriculture and cities; and "lacustrine", investigating the significance of lakes and water bodies.

There is a world of scientific measurement, understanding and language from which social and economic decisions and actions follow, though not necessarily in sync with science. Staff, not just scientists, say of their research and measurements: "We are a scientific organisation. We go by the science." Kuhn (2012), as a scientist, showed that science was a socially shaped activity, not simplistically the final arbiter of truth. Scientific staff and managers describe wildly variable community responses to scientific evidence according to differing values and local pressures, awareness often bearing little relation to the evidence collected. Several tensions exist in local government environmental work to deliver on the evidence of what the regional terrain, land use and population demand.

First, individuals locally may cite the science, but mostly when it lines up with their commitments. When it does not meet what they want, many objections and claims of unfairness come to the surface. Scientists often find themselves consulting and negotiating without having the training skills for group and social-political processes of information-giving, working through compliance on behalf of their organisation. Community responses may include hostility, staunch climate denials, or disregard for carefully accumulated data and trends.

Second, much of climate denial and opposition to implementing environmental programs is not actually about the scientific information, not rejection per se of the excellent and necessary work scientists do. The implications of the scientific facts of global climate heating and the extreme weather events will severely impact locally here, with a substantial sea-level rise as one example. The evidence does not by itself change people's minds or their actions since they are wedded to their existing farm, business, community, or the property where they live.

Third, the axiom "follow the money" is useful not just in crime novels and the courtroom. Current economic interest is often the driver of climate action or resistance to caution in building or land use. This is well known internationally in stories of the coal or oil companies making billions of dollars from their fossil fuel products and unwilling to *hear* scientific facts about greenhouse gas emissions and planetary heating (Mitchell, 2011). Bregman's (2020) description cited earlier shows the lengths to which vicious corporate manipulation is taken. Significantly, local communities demonstrate similar self-interest, so the axiom of following the money or identified self-interest is broadly true at the smaller one-country-one-region scale as well, though without the ability to directly affect other regions and countries globally.

Fourth, embedded in these conversations, a professional cultural modesty is evident among scientists, local government, and universities: you do not loudly assert the truth of your findings; the evidence should be allowed to speak for itself somehow. This becomes a real problem for scientists communicating the importance or urgency of what their research shows. In more colloquial language, scientists "undersell" what they know, giving space to denialism and being ignored outside specialist technical conversations. A further internal contradiction characteristic of some scientific cultures is avoidance of advocating for the relevance or importance of scientific results, otherwise risking dismissal by scientist colleagues against a scientist who does press the importance of river health or erosion practices, etc. The view is that they are no longer a scientist (Joy, 2021).

Fifth, the realisation that scientific knowledge is not primarily the problem in denial but attitudes and lobbying that denies accurate public information about the seriousness of climate change (Oreskes & Conway, 2010; Moore et al., 2016). Again, this short-circuits scientific information's impact in the community, influenced in part by United States domestic politics, vested interests, and social media denialism. Based on this reasoning, it is not the poor communication of science but the co-option by business claims that stops politicians and the public from learning about the serious circumstances we all face. The consequence is that often, local authority scientists find themselves repeating over and over the relevant factual basis for a plan or proposal, but without the salience of what they are reporting "sinking in" for ordinary community members.

Nature-society-culture and mātauranga Māori

As was noted earlier, landowners with whom regional government authorities are constantly working, often refer to their own ethic of stewardship, something derived from European religious forebears. Contemporary philosophy recognises that nature and society are one thing; they are not separate things (Leopold, 2020; Naess, 2011). Humans are one species, but even an apex species must meet the dictates of environmental possibility. Like bank borrowing, debt

can be delayed, but only for so long. Western-European beliefs that humans are separate from, above, or even the opposite of nature, or beliefs that humans have "dominion over" nature have an unfortunately long history. Settler logics of clearing land and the treatment of the environment in continuing farming intensification have shown little restraint in adverse agricultural environmental practices over many decades. Dairying probably has had the most egregious form of environmental impact in recent history in Aotearoa New Zealand.

Reactive political responses to Three Waters environmental changes are linked to a national shift from public focus on Māori inequality and social disadvantage to something quite new: the still-to-dawn realisation of our collective national need for strong Māori voices to affirm the cultural value that we humans are part of nature. This surprises Pākehā (White/European New Zealanders) if they yet realise this at all. But in time to come, headlining this cultural priority value will be a boon in anchoring popular thinking and media framing. It will help to hold governments and corporations accountable for meeting constitutional and legislative obligations under Aotearoa New Zealand's 1840 Treaty of Waitangi obligations (Orange, 1992), articulating this for all citizens' common environmental good.

Increasing civic and local government participation of Aotearoa New Zealand's Māori Indigenous people is a significant contemporary change underway as Māori regain greater roles in governance structures. To avoid cutting off the environmental branch on which we sit, we need Māori leaders' clear affirmation that we are all part of nature. Ultimately, it is the biophysical environment that shapes where and how we will live as humans and use what nature will provide. This idea/value is being more widely recognised today but is still not front-of-mind; little change has yet been achieved in how Aotearoa New Zealand's agriculture is conducted. Most of the modern urbanised consumer society continues to be heedless of the boundaries that we cannot afford to cross in terms of the environment (Li et al., 2021).

Clear expression of humanity's relationship with nature in Māori understanding—matauranga Māori—across a range of preferences (not simply extraction and exploitation of natural resources) will be an asset in local and national leadership as climate change bites more deeply. Magallanes (2015, p. 273) observes:

> Such different views stem from different cosmologies and religions that define the appropriate place of humankind within nature. They give rise to different understandings of human rights and responsibilities in relation to the natural world and what people can and cannot do with it.

The 2017 court decision in Aotearoa New Zealand, which recognised the Whanganui River as a legal person, exemplifies this positive turn even as the failure of climate adaptation persists.

In much the same way that dominant politics has a guiding influence on societal expectations and responses, this Māori bicultural stance on the natural world is establishing a record of legal precedents. Anthropologist Hickel (2020, p. 287) brings the question of values and cultural authority to issues of environmental protection:

> Over the past few years, a series of extraordinary court decisions in New Zealand has caused an international stir. In 2017, the Whanganui river—the country's third longest river, which the Māori people have long considered to be sacred—was declared a legal person. It is now recognised as 'an indivisible and legal whole from the mountains to the sea,' incorporating both its physical and metaphysical elements, the Māori have been fighting for this since 1870. … In the same year, courts gave similar legal standing to Mount Taranaki, which towers over the island's west coast. A few years prior, Te Urewera

> national park was made a legal entity, no longer owned by the government as state property, but rather to be owned by itself.

Western-centric puzzlement about 'legal person' can be pushed back to the nineteenth century when the commercial idea that a company could be a legal person came into being (Watson, 2019). Hutchison's analysis (2014) provides a rich background for the Whanganui River decision. The courts articulated a three-layered environmental principle in Māori culture in relation to the Whanganui River: first, care for the needs of the river itself for its own wellbeing; second, local families and communities gaining sustenance from the river; third, commercial opportunities. The environmental story that is evident here is that western capitalist society has inverted this order, creating climate and environmental fixes. There are gaping holes in national responses facing local government authorities who are themselves embedded in society's miasma of climate denialism, which, though fading, is still active.

From swamps to wetlands

It is hard to find a more literal narrative of modern cultural and environmental change than in the conversations of regional local authority staff and their work activities in the transition from the language of swamps to the language of wetlands. In the 19-20th century period of European-settler New Zealand society, clearing forests and planting grass was a moral, economic, and family livelihood imperative for Pākehā settlers (Campbell, 2020). Thus, a century ago, draining water bodies and clearing waterways was the primary route to increasing farmable land. The ecosystem functions of these water bodies in terms of organic matter, sequestering carbon, sustaining biota and biodiversity, and avoiding soil erosion were ignored.

Today, by contrast, Aotearoa New Zealand regional authorities increasingly give priority to the ecological drivers of landscape degradation, biodiversity loss and soil erosion at great cost and effort of staff time, energy, and financial expenditure. It is no criticism of this enormous organisational enterprise to wonder if this may be too little, too poorly funded. This work is still insufficiently recognised and inadequately resourced by the central government, even though it is valuable, necessary, and important in reorienting society in the right environmental direction. This doubt arises because the last century period has seen the well-documented "great acceleration" of land-use intensification, deforestation, using up of organic matter, CO2 emissions, and hugely increased application of pesticides and artificial fertilisers (Görg et al., 2020; McNeill & Engelke, 2016; Montgomery, 2012).

The very words 'swamp' and 'wetlands' reflect the moral economies of these different eras. Modern concepts like 'integrated catchment management' (Victorian ICM, 2017) and 'socio-ecology' (Everard, 2019) reference this switch in recognition of the environmental implications of continuing conventional agricultural regimes. Previous views of the agricultural nuisance in wet, boggy ground have been re-understood in terms of environmental sustainability. Frustration with swamps as impediments to agricultural progress and productivity is now recognised by all environmental disciplines as providing key elements of precious, life-giving and life-sustaining ecosystems. One local history from the mid-twentieth century titled 'From swamp to city' (Room 22, 1961) embodies this sense of linear history and progress in overcoming nature that is at the root of contemporary climate problems (Whyte, 2018).

Local authorities assisting, cajoling, partially funding and requiring landowners in catchment clusters to come into alignment with these new environmental imperatives is a difficult balancing act. Too much 'allowance' and a proportion of property owners will do little or nothing; the application of new regulation has been actively lobbied against for decades, even causing literal tractors-to-Parliament protests (New Zealand Herald, 2022). From negative portrayal as swamps, these spaces are now seen by scientists, regional local governments, and

increasingly central government policymakers as the engine rooms of environmental sustainability. Several features of this transition can be seen in conversations with these different parties as they push against one another.

First, local and central government authorities are actively promoting farmer catchment groups (New Zealand Herald, 2021). How "integrated" they are, in fact, depends on many social factors such as leadership and social conservatism. A cabal of older farmers who "know what they know" may do little more than take the money for riparian planting but resist more extensive adaptation of farming practices beyond limited predator control. Rural women have, in some cases, run very effective catchment groups, avoiding attitudes of masculine self-sufficiency, encouraging information sharing and cooperative action in accessing funding or changing community farm practices to ameliorate waterway and soil problems in that catchment (Ostrom, 1990).

Second, in some instances, sub-catchments are a more natural unit for integrating farming practices around water quality, fertiliser, and animal waste leaching within permitted nutrient levels. At whichever level of socio-ecological integration, however, local authorities are today appointing new staff roles with high-level skills, thinking of ways that best form, engage and sustain catchment groups. This takes time, particularly staff styles and dispositions, understanding how rural communities work together, and developing community familiarity to establish the legitimacy of expertise and personal credibility. There are parallels in such work with previous generations of farm extension and advisory work (Vanclay, 2004).

Third, regional government authorities suffer from the internal contradiction of the contrasting agendas of two eras of public and political discourse and understanding of water bodies (Campbell, 2020). On the one hand, they are tasked with executing century-old legislation from the settler "get rid of swamps" era to drain wet areas, get water to the sea, and clear forestry to promote economic activity. This disregarded the environmental basis of farming. Regional authorities today still must meet that legislation. However, now, in the "wetlands" era, they are also tasked with preserving wetlands and waterways, restoring them where possible, and designating Outstanding Water Bodies. As climate change increases, towns and communities inundated by major weather events will call for government and regional councils to "get the water out of here." Relocating whole communities, including Māori communities often living close to waterways, will become political (Corlett, 2021).

Fourth, there is a further contradiction in which regional authorities find themselves ensnared in terms of erosion. They continue to increase budgetary commitments to planting trees in schemes such as "Right tree, right place," giving assistance to retiring erosion-prone steep slopes from pasture and, where possible, slowing water flows. The contradiction lies in connecting this erosion work with the spending and effort on wetlands. While wetlands are of fundamental importance, erosion control, even with these strenuous efforts, is only partly under the control of local government authorities. Enormous quantities of eroded material come from higher hill country and mountainous areas, which are under the control of the underfunded Department of Conservation (DoC).

Predator management schemes in both farmland areas (local, regional government-controlled) and wilderness and forested areas (DoC-controlled) continue today. The 17 ungulate species of pests, primarily deer, are inadequately controlled since predators are defined as possums, stoats, other mustelids, and wild cats. Leopold (2020) described the problem of allowing deer to thrive and multiply since deer grazing stopped forests and plants regenerating, massively accelerating erosion in the great rivers and waterways of the southwestern United States. In Aotearoa New Zealand this is literally an uphill battle of futility. Until the DoC or some

successor entity is mandated to stop trying to achieve a 'balanced' arrangement with hunters and deer numbers are ruthlessly controlled, the country will continue its current erosion failure, emulating the United States environmental disaster of the 19th and 20th centuries. This needs to be solved at the national level.

Conclusion

Learning through environmental ethnography opens new doors for understanding the smallest social interaction to the macro-scale processes of society—region, nation, politics, financialised capitalism, humanity's future, our being part of nature, and stable planetary functioning. In the present discussion, ethnographic reflection has centred around environmental and climate changes that impact the work of Aotearoa, New Zealand's regional local authorities. Far from being mundane infrastructural processes of local administration, the work of regional councils raises all the major themes of environmental degradation and climate heating caused by how humans interact with nature.

The aim of this discussion has been a reflection on learning about the integration of the environment with human activity through an ethnographic perspective. Each vignette and process sketched above has other ethnographic details and perspectives that would elaborate the stories of effort, costs, career pathways and environmental meanings for those involved in this sector. Keeping the environmental ethnography straightforward has risked simplification but has allowed the blending of individual stories, referencing them in broader terms rather than foregrounding individual circumstances. Some final observations offer links to other discussions that environmental ethnographic work can illuminate.

First, regenerative agriculture in Aotearoa New Zealand is a bright spot. It is farmer-driven, and in supportive groups, it is actively reorienting the country's extensive farmland estate toward biological competence (Evans, 2020). As I have interacted with regenerative agricultural farmers or those transitioning to regenerative agriculture, their commitment to farming in ecological and environmentally friendly ways is impressive, even pioneering.

Second, the contested politics around a new national water management system will greatly impact the work of local authorities. Local champions defending their community's identity and rights must be 'careful what you wish for.' Climate change is ramping up sharply in the next few years, which means rates and costs for services will increase steeply beyond levels of payment considered reasonable. Retaining ownership of local entities when the national population is less than a major world city does not make a lot of sense and may leave communities holding liabilities rather than assets.

The fundamental principle of environmental ethnography starts with the commonsense observation that the ethnographic tradition is about investigating human communities, practices, locations and interactions. But this is only half the story. The other half, environmental ethnography, deepens contemporary investigations of communities and organisations. Today, this sits like other important perspectives such as feminism, socio-economic positioning, or ethnic inequalities. Environmental patterning, motivations, understanding, opportunity, failure, and contested practices all need to be embedded in contemporary ethnographic work. This is not merely a background but an active variable in understanding our human situation and how communities within society function and change over time. As Bradley (2017, para. 28) observed:

These processes are manifestations of much larger economic and historical phenomena, unable to be understood without considering the unequal distribution of wealth between nations, the

role of global capitalism and consumer society, the legacies of empire and decolonisation. Yet, writing about those larger economic and historical phenomena is extremely difficult without ignoring the particularities of the experience of climate change for individuals and individual landscapes.

Yes, it is humans acting in their locales and environment that makes each study different. But an environmental ethnographic lens discerns the philosophical threads countering the dualism of western society—between mind and body, men and women, empires, and colonies, rich and poor, subject and object. Making distinctions is often useful, but western infatuation with dualistic categories rather than older traditions and philosophies has missed the point. That is, while a binary can sharpen thought, it is important to seek synthesis—what is the relationship, the dialectic interaction between supposed opposites—humans and nature?

Whether one's ethnographic journey moves among Indigenous communities or among western-trained scientists, today we are having it impressed upon us that humans and nature are not opposites. The truth is that human systems are unravelling, not earth's, not nature's. Respecting nature as our senior partner can start locally. Nature simply does what physics, chemistry and biology have always done (Friedman, 2010). The amorphous planet-scale of climate change and environmental disasters is almost beyond human appreciation. This makes the importance of local, regional, and national accounts of events, structures, and human actions a register to which environmental ethnography can contribute.

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