



## Kaitiakitanga, place and the urban restoration agenda

Erana T. Walker<sup>1\*</sup>, Priscilla M. Wehi<sup>2</sup>, Nicola J. Nelson<sup>3</sup>, Jacqueline R. Beggs<sup>4</sup>,  
Hēmi Whaanga<sup>1</sup>

<sup>1</sup>University of Waikato, Private Bag 3105, Hamilton 3240, New Zealand

<sup>2</sup>Te Pūnaha Matatini, Manaaki Whenua Landcare Research, Private Bag 1930, Dunedin 9054, New Zealand

<sup>3</sup>Centre for Biodiversity and Restoration Ecology, School of Biological Sciences, Victoria University of Wellington, PO Box 600, Wellington 6140, New Zealand

<sup>4</sup>Centre for Biodiversity and Biosecurity, School of Biological Sciences, University of Auckland, PO Box 92019, Auckland 1142, New Zealand

\*Author for correspondence (Email: [etojw1@students.waikato.ac.nz](mailto:etojw1@students.waikato.ac.nz))

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**Auheke:** Ko te oranga o te tangata kei roto i tōna tūhono ki tōna taiao. Mō te hunga Māori o Aotearoa, ko te whakapapa ki a Ranginui rāua ko Papatūānuku te ara whakaū i tō tātou hononga ki ngā atua Māori me ō rātou tini tamariki. Ko ngā atua ngā pou o te ao tūroa e kaha whāngai, e kaha manāki ana i te hunga Māori me tōna ahurea. Koia nei ko te orokohanga mai o te kaitiakitanga. Mā ngā mahi ā-rēhia, ngā tikanga nō tuawhakarere, ka ora ai te hononga o te tangata ki tōna taiao. Heoi nō ngā tau hou, kua ūhia tēnei momo mana kaitiaki ki runga i te hunga tangata, hei tiaki hei manāki i ngā mokopuna o te taiao. I roto hoki i ēnei tau hou kua hipa, kua nui ake te hunga Māori kua hūnuku ki ngā taone o Aotearoa. Ko te nuinga nō iwi kē, e noho ana i raro i te korowai manāki o ngā hunga mana whenua o ērā taone. Ka mutu, kua muia hoki te taone i ngā kino hauropi, ā, kua mōtū te hiranga o te taiao ki te oranga o te tangata noho taone. Nā te nui o ngā pēhitanga ki te taiao o te taone, kua whakaho ake ngā mahi haumanu hauropi e te hunga putaiao. Heoi, tē whakaū i ngā uara Māori ki ēnei mahi whakahaumanu. Ko te whāinga matua o tēnei tuhinga, he arohaehae i te awenga o te kaitiakitanga ki te taone. Ko tā matou he whakawā i te huanga o te kaitiakitanga ki ngā mahi whakahaumanu hauropi i te taiao o te taone. Mā te tātari i ngā momo tauira o te kaitiakitanga ka kite i ōna aho me te hiranga o ēnei aho ki te whāinga matua o te manaaki i te taiao. Me te aha, ko te mātauranga taketake, te matauranga a te Māori pea te rongoa hei whakarauora i te ao tūroa.

**Abstract:** Indigenous relationships with the environment are embedded in narratives and cultural practices. In New Zealand, Maori have maintained their relationship to the environment through a practical philosophy of environmental guardianship known as kaitiakitanga. Place and practice are inextricably linked in traditional Maori narratives; a connection constructed through Maori creation stories and the concept of whakapapa. However, the speed and scale of urbanisation of Maori communities has changed societal structures and narratives, as well as connections with nature. Urban spaces present new challenges in maintaining processes of connections with the natural world in a kaitiakitanga framework. We explore key components of kaitiakitanga such as place, whakapapa, intergenerational knowledge, resource engagement and spirituality. We discuss why kaitiakitanga should be included as a key value within urban spaces and how kaitiakitanga principles encourage the well-being of people and taiao. The contribution of kaitiakitanga to the urban matrix must also explore the relationships of both mana whenua and mātauranga. Including indigenous perspectives from both groups when considering urban ecology is a key gap in understanding the impacts of urbanisation on Maori. More importantly, the inclusion of indigenous values such as kaitiakitanga into the urban agenda provides an opportunity to improve environmental outcomes.

**Keywords:** Ecological restoration, indigenous knowledge, mana whenua, Maori, urban ecology, whakapapa

## Introduction

Indigenous relationships with the environment are embedded in narratives and cultural practices (Roberts et al. 1995; Sangha et al. 2019). Such relationships with the environment have been maintained by Māori (indigenous people of New Zealand) in Aotearoa (New Zealand) for many generations through a practical philosophy known as kaitiakitanga (environmental practice). Kaitiakitanga is a way in which Māori manage the natural environment based on Māori worldviews. Place and practice are inextricably linked in traditional Māori narratives; a connection constructed through the creation stories of Ranginui (sky father) and Papatūānuku (earth mother) and the concept of whakapapa (genealogy) (Marsden & Henare 1992; Mikaere 2011). These traditional relationships to the environment, whakapapa and the practice of kaitiakitanga are challenged in urban settings, given the migration of people into urban areas and the characteristics of the urban environment. Within New Zealand, the inclusion of indigenous knowledge is very limited in ecological science (Wehi et al. 2019a). This missed opportunity to include perspectives of indigenous communities into the way we might theorise ecology continues a western discourse of ecology and connection to the natural world that erases other experiences and knowledge (Sangha et al. 2019).

Misinterpreting and disregarding indigenous knowledge in how we might approach ecological research, management and policy in New Zealand has the potential to cause disruption to years old mātauranga (knowledge) and subsequently, impact the mana (authority) and wellbeing of Māori peoples (Wehi & Lord 2017). Understanding how indigenous values and practices, such as kaitiakitanga, can be included and incorporated into the urban matrix and in urban ecological restoration projects could enhance the longevity of indigenous knowledge, as well as offering a solid base for Māori to maintain identity. Recognition of the important contribution of mātauranga could transform opportunities to improve restoration outcomes of urban environments. Therefore, we consider the relationship of indigenous communities to the urban space as an important contribution to restoration of the urban environment. The concern around disrupted indigenous relationships with the environment should be harnessed as a driver to include indigenous values in management of the urban matrix through the incorporation of kaitiakitanga.

In this article we present kaitiakitanga narratives, and tease out the philosophical underpinnings of this concept. Urban restoration that includes kaitiakitanga can potentially improve the outcomes for urban ecology, as well as provide ways in which we might foster our sense of connection to, and the rich stories that exist in the environment.

## Urbanisation, nature, and kaitiakitanga

### Urbanisation of Māori

Urbanisation of human populations has occurred on a global scale, with more than 50% of the world's population now living in urban areas (Grimm et al. 2008; United Nations 2014). Until the early to mid-20th century, most Māori lived in a rural environment operating within the social structures of their local iwi (tribe) and hapū (sub-tribe). For example, in 1936, 81% of Māori lived in predominantly rural tribal areas (Barcham 1998), which allowed Māori to connect with our own ancestral landscapes and stories. This connection to place also ensured

the longevity of traditional cultural knowledge and practices amongst whānau (family) and hapū (Gagné 2013). However, in recent decades a large proportion of Māori migrated to cities with the result that more than 80% of Māori now reside in urban spaces in New Zealand (Ryks et al. 2016). This urban group includes both mana whenua (local Māori tribal groups) and mātāwaka (Māori from other regions) (Statistics New Zealand 2013; Gagné 2016; Ryks et al. 2016). The speed and scale of this demographic rural-urban transition means that some aspects of traditional Māori culture (such as kaitiakitanga) are still adapting to the changes in social structure and identity that urbanisation has demanded. The shift from traditional lands to new, urban spaces therefore presents a challenge in a modern context for undertaking traditional practices such as kaitiakitanga. Whilst urban spaces challenge our connection with nature, they encourage us to consider how we might develop new ways of connection to the urban space and the mana whenua groups who care for their traditional resources and places of importance (Michel et al. 2019).

Urban spaces in New Zealand have contributed to the modernisation of cultural norms such as the addition of urban pan-tribal marae (meeting place) to the traditional structure of tribal groups (Gagné 2013). Pan-tribal marae have been instrumental in the creation of Māori knowledge and identity that spans traditional tribal boundaries (Ryks et al. 2016). These marae have paved the way for many Māori to maintain traditional ways of living and values, albeit within a pan-tribal context. Although these marae are located in urban spaces, Māori communities have used the urban space to create a solution to support the retention of cultural knowledge (Ryks et al. 2016; Gagné 2013).

### Nature connection and human wellbeing

Human relationships with nature are critical to well-being (Razak et al. 2016; Jennings et al. 2017), and urbanisation uniquely separates the connection between humans and nature (Turner et al. 2004; Shanahan et al. 2015). Lack of engagement with nature in urban spaces poses a risk to not only our sense of connection, but also to our physical and mental well-being (Hartig et al. 2014; Triguero-Mas et al. 2015). Ideally, urban spaces are managed to enhance the natural environment for both human well-being and native biodiversity (Stanley et al. 2015; Jennings et al. 2017). Nature plays a pivotal role in creating our sense of identity and reaffirming our standing place within this world while providing an avenue for better healthy living (Keniger et al. 2013; Shanahan et al. 2015). For Māori, the creation narratives of Ranginui and Papatūānuku cement this relationship to the natural world and provide a way to create meaningful connections for well-being. It is through this relationship that we may further establish relationships to other Māori gods such as Tāne (god of the forest) and Tangaroa (god of the sea) to draw our well-being and sense of connection to nature. Urbanisation has the potential to sever these connections, leading to dissonance between traditional indigenous worldviews and the current contemporary realities of indigenous peoples.

Today, Māori disproportionately live in lower socioeconomic urban areas, which tend to have fewer opportunities to connect with nature (Shanahan et al. 2015). For example, in Auckland, there are fewer kererū (*Hemiphaga novaeseelandiae*) in low socioeconomic areas (Baranyovits 2017), and fewer protected trees (Wyse et al. 2015). Therefore, it is likely that urban Māori are disproportionately disadvantaged by a lack of opportunity to connect with nature. Understanding the

importance of indigenous relationships with nature could identify better ways to include indigenous perspectives into managing urban spaces. Inclusion of indigenous values and narratives could provide urban Māori an opportunity to re-establish and maintain their connections with traditional narratives and practices with nature, contributing to an increased sense of well-being, particularly for those who live in lower social-economic areas. For example, Te Whangai Trust (see [www.tewhangai.org/our-services/](http://www.tewhangai.org/our-services/)) provides opportunities for its members to restore and care for the natural environment while gaining employment skills. Initiatives such as these show the potential that kaitiakitanga projects could have for both physical and cultural well-being and sustenance.

### Restoration of urban ecosystems

Protecting global biodiversity relies on the participation of indigenous peoples, who act as stewards of more than 80% of biodiversity worldwide (Stevens 2014; Garnett et al. 2018). Although attention has primarily focussed on rural and remote areas, global urban expansion is also a major threat to biodiversity (Marzluff & Ewing 2001; Haddock et al. 2019), therefore stewardship by indigenous people should also be considered in the urban context. Urban settings can have distinct isolated remnant ecosystems, such as forest patches, streams and gully systems, within a highly modified urban matrix where people live and work. Restoration of remnant ecosystems in urban spaces (Sullivan et al. 2009) and restoring biodiversity values in urban areas is an important way of mitigating the impact of urbanisation on biodiversity (Marzluff & Ewing 2001). If urban restoration efforts adopted a holistic approach using the urban space as a canvas for creating new urban ecosystems and connections, then it is likely there would be better outcomes for people and the environment. This is particularly important for young people in urban spaces who are often limited in their attainment of traditional ecological knowledge (Hand et al. 2017; Reihana et al 2019).

Incorporating both ecological and cultural values into the urban matrix itself is a challenge; this might involve, for example, actions that increase connectivity to place and support reciprocal relationships to the land. For Māori, loss of cultural context, connection to nature, and educational opportunity combine to make engagement in urban restoration challenging. Where these impediments are overcome, we argue that kaitiakitanga can make a significant, ground-breaking contribution to urban ecological restoration. Whilst some researchers have identified the importance of indigenous knowledge in envisaging and contributing to ecological restoration movements (Higgs 1997; Turner 2008; Lyver et al. 2016), data are few, and an examination of kaitiakitanga within urban spaces is long overdue.

### Kaitiakitanga/Māori contribution to restoration

Kaitiakitanga involves practices that nurture wellbeing in a socio-environmental context. As such, kaitiakitanga incorporates a practical philosophy, protecting reciprocal relationships between people and the environment (Marsden & Henare 1992; Kawharu 2010). Legislation such as the Resource Management Act (RMA; 1991) supports the philosophy of kaitiakitanga by enabling environmental management, mitigation and protection of our natural environment (Morad & Jay 2000; Daigneault et al. 2017). However, the RMA uses a definition of guardianship, or environmental stewardship pertaining to kaitiakitanga that only weakly aligns with the

philosophy and current practices in Māori communities (Magallanes 2011; Walker 2016). The inclusion of kaitiakitanga as a concept in the RMA has exacerbated shortfalls in its understanding, as current legal definitions of kaitiakitanga de-emphasise the spirituality, place-based narratives, kinship and intergenerational knowledge that contribute to cultural understandings of kaitiakitanga (Ruru 2018). While this has given Māori the legal basis to lobby for political, social and cultural recognition in relation to the environment (Kawharu 2000; Mutu 2010), and encouraged the need for better partnership in decision making (Hill 2009; Mutu 2010), the restrictive nature of current definitions of kaitiakitanga does not capture the full breadth of meaning within a Māori cultural framework. Therefore, more narratives of kaitiakitanga are needed to show how various Māori communities are practicing kaitiakitanga today. Experiences of kaitiakitanga differ between whānau, hapū and iwi groups. Here, we present two examples of kaitiakitanga undertaken by Māori in urban spaces.

## Kaitiakitanga Narratives

### Waitaua kaitiakitanga narrative

The following narrative by Erana Walker of Te Parawhau (subtribe of Whangārei) and Ngāti Ruamahue (subtribe of Ngāti Kahu ki Whangaroa), exemplifies the benefits that a grassroots kaitiakitanga project in urban Whangārei can have for both the well-being of nature and its people. “In 2003, when I was 11, I visited our local river, Waitaua in Whangārei Te Rerenga Parāoa and stood at Parakiore (a place in Whangārei city) to see its pathway from where the river began, and then where it flowed out into the Whangārei harbour. We, the students of Te Kura Kaupapa Māori (TKKM) o Te Rawhitiroa (full immersion Māori school), walked along the river to see for ourselves its change from a small tributary to a larger stream and to hear how it had changed since our ancestors’ times. The pollution was a physical representation of the depletion of mauri (life force) of our river. We realised that our histories, our opportunities to work with local resources, and access to historic practices were damaged. We felt a surge of passion and desire to restore our connection to our river and its rich stories.

We undertook events to aid restoration of Waitaua, such as tree planting, river monitoring, educational community events, and conference talks, as well as creating different forms of media about the pollution of the river. Our kura (school) whānau, tumuaki (principal) and hapū of Whangārei guided these activities. We saw that protecting and increasing the mauri of Waitaua river required significant effort from many hands thus, we worked with different community groups to harness their skills and knowledge to contribute to the river restoration. It was through this restoration project that I began to appreciate our narratives and values more deeply, and in particular, how these connected to actions to heal our places of Whangārei. Familiar narratives of Papatūānuku and the many Māori gods, as well as our local tūpuna (ancestors) surfaced during this process and subsequently highlighted the importance of the river to our histories and identity, especially within an urban context. The project gave us an opportunity to be reminded of the living characteristics of the river and to continue to view it as part of our community. The lessons we learnt, and the days we spent planting and monitoring, are embedded into both our minds and our landscapes for future generations.”

The Waitaua originates north of Whangārei, flows

around the edge of an urban area east of Whangārei and eventually becomes the Hātea (Hotea) River. The Waitaua site monitored by Northland Regional Council has significant bacterial contamination and the quality is ranked as ‘very poor’, scoring as suitable for swimming only 28% of the time over 5 years and at times exceeding 2600 *Escherichia coli* per 100 mL (Northland Regional Council 2008). The primary source of faecal contamination was not human, but ruminant herbivores and possibly waterfowl. Restoration of this waterway has been underway since 2002, primarily by revegetating riparian margins and educational events held by the Whangārei community.

This kaitiakitanga narrative of Waitaua illustrates the role of whakapapa and relationship to place. It highlights the need to undertake kaitiakitanga practices within urban spaces, and how such projects can reaffirm our relationships and connections to nature. Establishing kaitiakitanga projects such as the Waitaua restoration encourages a sense of responsibility to nature and the historic stories preserved within it.

### Ngāti Whātua Ōrākei kaitiakitanga narrative

As with the Waitaua whānau, other mana whenua groups in urban spaces are challenging the assumption that kaitiakitanga practices cannot take place in multicultural, built environments. Ngāti Whātua Ōrākei in central Auckland have developed a holistic kaitiakitanga approach that aims to increase the well-being of its hapū members through all aspects of life. Thus, key values and principles, such as kotahitanga (unity), rangatiratanga (chieftainship) and kaitiakitanga, are interwoven into the planning and design of papakāinga (village, housing) projects (Stuart & Thompson-Fawcett 2010). Such values ensure that the built environment reflects the underpinning values of the iwi allowing better opportunities to connect with the environment in urban areas.

Ngāti Whātua Ōrākei acknowledge the interdependence of aspects of the natural world such as the lands and the seas on the well-being of the people, and the Ngāti Whātua Ōrākei iwi management plan (2019) further sets out the desired outcomes of the iwi in exercising their kaitiaki role within their rohe (region). The iwi management plan and papakāinga development supports a philosophy of nature and culture interwoven when undertaking kaitiakitanga, including cultural values into urban management plans. This contrasts with more usual urban practices where community engagement in urban restoration projects frequently focuses on ecological and physical processes but may not incorporate relational aspects and/or reciprocity between humans and nature into their vision (Wehi & Lord 2017). Projects such as the restoration of Okahu Bay by influencing council to separate stormwater and sewage (Ngāti Whātua Ōrākei 2019), the removal of moored vessels in Okahu Bay (Kupenga 2017), and the use of kūtai (mussels) for bioremediation (Van Kampen 2014) show the multi-layered, holistic approach of Ngāti Whātua Ōrākei to exercise kaitiakitanga within their tribal boundaries. This approach intertwines both ecological and cultural knowledges to support the restoration and protection of nature.

Such kaitiakitanga restoration projects support the protection of mauri and whakapapa amongst Ngāti Whātua Ōrākei by providing constant reminders of their obligation to their region. Allowing hapū to lead their own ecological restoration projects in urban space enables opportunities for engagement with the environment whilst supporting the retention of urban biodiversity.

## Kaitiakitanga Threads

We need to explore more deeply how kaitiakitanga is, or can be, applied by a range of Māori groups. These collaborative efforts should consider how kaitiakitanga principles can be interwoven in urban space planning, perhaps in ways similar to the efforts of Ngāti Whātua Ōrākei and the Waitaua river restoration. We present some initial ways to create initiatives for ecological restoration projects that draw on the underpinning threads of kaitiakitanga philosophy in Table 1.

The two kaitiakitanga examples show the potential of kaitiakitanga values for holistic restoration of urban spaces. The narratives highlight key threads of kaitiakitanga, the importance of place, whakapapa relationships, stories, histories and intergenerational knowledge that help to enhance all aspects of a person’s well-being and that of the environment. Incorporation of Māori values could change the face of urban restoration and engagement of people with nature in cities, providing connection to people, stories and nature. We elaborate more on these threads to show the multiple layers of kaitiakitanga.

### Whakapapa relationships

Whakapapa is the first thread that initiates our role as kaitiaki to our environment. Kaitiakitanga actions are rooted within the creation narrative of Papatūānuku and Ranginui that establish kin relationships between Māori and the physical environment (Mikaere 2011). It is through kaitiakitanga that a reciprocal approach of care and well-being is expressed in its varying forms (Roberts et al. 1995), by retelling the creation narratives that exist within our places of significance and living out these stories through cultural practice.

Relationship narratives are strengthened through physical contact with the environment (Wehi & Wehi 2010), seen in practices such as seed collection, waiata (song) and karakia (prayer). Viewing our kin through a reciprocity lens allows for the transferal of mauri and mana between our kin groups (Timoti et al. 2017), and ultimately encourages continued engagement as seen in the Waitaua restoration project.

### Place

Drawing from the whakapapa narratives, ‘place’ becomes the second thread of kaitiakitanga that embodies the narratives of old and new for future generation use. Place-based narratives and engagement help to centre whānau and hapū in their tribal regions. Such narratives often incorporate Papatūānuku as a central pillar for connection to the environment as Māori embody her characteristics through whakapapa, natural landscapes and the concept of home (Simmonds 2009). These understandings of land and place are historical, emotive and further, a mechanism to ‘story’ meaning into our landscapes. It is through narratives that we see place as being a connecting point with our ancestors and kin of the natural world.

Without understanding the role of place, concerns arise about the loss of unique place-based qualities and practices (Stephenson 2008). That is, kaitiakitanga as a practice is applied differently according to the needs and understandings of communities, and species of a particular area. Understanding the relevance of place enables better considerations for environmental protection of an area (Artelle et al. 2018). Kaitiakitanga draws on the many historic stories related to place to centre the whānau or hapū, and it is through cultural practice and engagement that we begin to contribute our

**Table 1.** Critical components of kaitiakitanga are identified in the table with the accompanying actions to support mana whenua and mātāwaka in practicing kaitiakitanga. These actions are suggestions to support the creation of restoration initiatives that are framed through kaitiakitanga.

Aspects of Kaitiakitanga	Potential restoration actions
Place	Place-specific restoration projects;
Engagement	Research harvesting narratives; Whakapapa narratives & the use of resources; Including practitioners of cultural practices in restoration i.e. Māori healers, fishers, weavers into restoration projects; Development of engagement projects to include mātāwaka as well as mana whenua in Kaitiakitanga initiatives.
Intergenerational knowledge	Use place narratives; Educational activities; Encourage hapū leadership on knowledge protection; Inclusive restoration projects e.g., using tuakana (older sibling) teina (younger sibling) concept; Construct language tools e.g., waiata, whakataukī to preserve knowledge; Mātāwaka could share relevant knowledge with mana whenua groups about their resource use in urban areas.
Kinship	Hapū projects; Hapū narratives; Engage with mana whenua groups; Create opportunities to allow mātāwaka and mana whenua to share ideas for urban restoration projects.
Spirituality	Encourage cultural practices in restoration projects such as karakia, rongoā (Māori medicines) harvesting etc; Consider mana and mauri in project; Recognition of sacred places and their narratives.

own narratives of place to our ever-evolving kaitiakitanga knowledge systems.

### Intergenerational knowledge

Mātauranga is embedded and preserved in many forms of cultural practice, oral traditions and art, including waiata, whakataukī (proverbs) and naming (Mead & Grove 2001; Wehi et al. 2018; Wehi et al. 2019b). This knowledge encompasses the lived experiences of the past and aids in the creation of solutions for future issues (Paul-Burke et al. 2015). Intergenerational knowledge can be transformative when generations have an opportunity to add to the knowledge base through their lived experiences. The transmission of mātauranga can be done in myriad ways, even by creating digital reference tools about a place, its resources and its peoples (Marques et al. 2018; Reihana et al 2019). At Waitaua, intergenerational knowledge pertaining to cultural practices and histories is embedded in the landscapes along the river. However, the project also allows new modern knowledge about the care of the river and the experiences of taura (students) to flourish, to be embedded into the landscape. Intergenerational knowledge is the thread that ensures the longevity of cultural practices and worldviews as well as the lived experiences of ancestors.

### Spirituality

The concept of spirituality and the values that underpin it are key components of kaitiakitanga often disregarded in environmental forums (Selby & Moore 2010). This attitude towards spirituality has had an impact on the validity of Māori knowledge systems and the application of Māori cultural practices (Stephens 2001). Spirituality provides the opportunity to connect with intrinsic aspects of kaitiakitanga such as mauri. The health of the resource is often used as an indicator for the health

of the people; whereas, in Māori philosophical frameworks, both Māori and the environment share a connection through mauri and other forms of energy (Marsden & Henare 1992; Timoti et al. 2017). The Waitaua restoration project, utilised the thread of spirituality to foster a relationship between the dormant river and ourselves. Understanding the importance of mauri provided an opportunity to reinvigorate the relationship to the river Waitaua and allowed aroha (love, affection), manaakitanga (care, protection), koa (joy) and pōuri (sadness) to be expressed throughout this process.

### Engagement

One of the key features of kaitiakitanga is the opportunity to engage with the environment through cultural practices. Cultural practice allows a reciprocal relationship to establish between the person and the environment (Lyver et al. 2008; Wehi & Wehi 2010). This reciprocal relationship is then strengthened through understanding the role of whakapapa in connecting the individual to the environment before, during and after the contact phase. Kaitiakitanga acts as a cultural bridge between Māori and our kin in the environment. In addition, harvesting and other practices that maintain reciprocity between people and the land are critical to maintain Māori knowledge systems, as learning is based on these relationships and practices (Wehi & Lord 2017). At Waitaua, the community engaged in visiting the river, riparian planting and water monitoring as well as swimming, harvesting seeds and events held next to the river. Engagement with resources is likened to visiting kin; therefore, engagement practices will be dependent on the local people, narratives and places of significance.

These kaitiakitanga threads help to ensure a holistic approach when undertaking the practice of kaitiakitanga by providing an opportunity to consider all aspects of a person's

well-being, including their physical and spiritual well-being. How these threads encourage the restoration of urban spaces may lie within the leadership of Māori groups in initiating and undertaking such projects in urban areas. As well, the inclusion of kaitiakitanga into the urban agenda would provide opportunities to learn historic and modern stories and provide mechanisms to connect with these stories and its people. Restoration initiatives can serve kaitiakitanga projects through physical and educational initiatives as seen in the Waitaua restoration project and the Ngāti Whātua Ōrākei papakāinga development. This would require collaboration with mana whenua to develop an inventory of important resources and narratives to a specific area.

Adding the participation of mātāwaka will support their connections to space and the shared kaitiakitanga aspirations of both mana whenua and mātāwaka groups. Pan-tribal groups that work alongside mana whenua could be established in order to facilitate an entry point for those who want to give their time and knowledge to the various environmental kaupapa (topic, matter for discussion, purpose) in the place that they now call home. This pan-tribal approach could work similarly, for example, to the Awataha Marae development goals (2006) and the Kirikiriroa Marae strategic pou (post, pillar) (2019) which both share aspirations to restore and protect urban natural resources but are largely driven by mātāwaka, with the support of mana whenua. Drawing from these types of initiatives, potential projects could develop that enable kaitiakitanga restoration in more public spaces such as parks and areas for recreational use. Initiatives such as these could further develop new methods for urban dwellers, such as those used by Reihana et al. (2019) to connect people to nature through technology. Such projects would require the support of mana whenua and could fuse kaitiakitanga practices of both mana whenua and mātāwaka groups into the urban matrix. These opportunities for engagement only heighten the need to understand kaitiakitanga practice between mana whenua and mātāwaka.

## Conclusion

We demonstrate two ways in which kaitiakitanga is applied by different urban Māori communities. Kaitiakitanga and its application by mātāwaka is yet to be analysed, along with the inclusion of this philosophy in the ecological restoration of urban areas. There is opportunity through kaitiakitanga practices to jointly secure the relationship of Māori to our natural world and encourage the ecological enhancement of the urban space. We further show that by drawing out the philosophical underpinnings of kaitiakitanga, its application can differ, but will ultimately advocate for and enhance the well-being of both tāngata (people) and taiao (the environment). We suggest that in urban spaces inclusion of kaitiakitanga principles would also advocate for the well-being of people and taiao in all aspects.

Kaitiakitanga includes local, historical and cultural knowledge in its processes. For this reason, restoration projects that engage with kaitiakitanga will encourage an appreciation for nature and its contribution to our cultural knowledge and practices (Ellis 2005; Wehi et al. 2017). Our understandings of kaitiakitanga must incorporate adequate understandings of place narratives, kinship relationships, spiritual connections, practices and intergenerational knowledge systems. Including these important aspects in ecological restoration projects as

well as the urban matrix may pave the way to transdisciplinary approaches like the Waitaua restoration project and the efforts by Ngāti Whātua Ōrākei, to create a multi-method response to environmental issues that aligns with Māori cultural frameworks. Transdisciplinary approaches have the potential to transform restoration within urban spaces that encourages the longevity of indigenous ecological knowledge.

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