

Papatuanuku, Earth Mother: indigenous knowledge in 21st century soil management

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Abstract. On 20 March 2017 the New Zealand parliament passed the Te Awa Tupua (Whanganui River Claims Settlement) Bill which established the Whanganui River as a legal ‘person’ with all of the rights, powers, duties, and liabilities of the same. The Act endorses and illustrates how Māori perceive their relationship to the natural world. The passing of the Act challenged the river people to restore their ancestral river to good health. Changes in land use beginning in the later part of the 19th century had seen soil fertility decline, water quality deteriorate and the soils that sustained life in its catchment increasingly washed out to sea. These impacts profoundly changed the lifestyles of the people that belonged to it. Describing the issues facing the river iwi (tribes) and their response to them will help illustrate traditional understandings relating to the river, the whenua (the land) and the life sustaining capacity of the soil. It also serves to demonstrate the relevance of traditional knowledge to addressing the current ecological crisis. This viewpoint focuses on key concepts from Māori understandings of the natural world that relate to the primary themes of this conference and suggest how they can contribute towards deepening and broadening our knowledge of soils and what needs to be done to sustain them. In particular the concept of ‘mauri’ will be explored and how that relates to the capacity of soils to support the life that belongs there. Māori, and many traditional peoples, regard the whole landscape as essentially interdependent and consider that the wellness of any part of it, be it soils, vegetation, water quality, etc., can only be understood within the context of the whole network of connections that sustain life. The challenge for researchers, from an indigenous perspective, is to be mindful of the ‘whole’ while focusing on the areas of their particular expertise.

Keywords: Whenua, Mauri, Te Awa Tupua, Papatuanuku, Karakia, Tuakana and Teina.

Received 4 September 2020, accepted 26 November 2020, published online 10 December 2020

More than 30 years ago I was busy weeding my garden in Pakipaki, a little settlement in Hawkes Bay, one of New Zealand’s premium horticultural regions, when one of the kaumatua – elders – from the Whanganui River drove past. He stopped to have a chat. I was a Catholic priest at the time, working with Māori communities throughout the whole of Hawkes Bay. ‘I suppose you think I should be out looking after the lost sheep?’ I said, being conscious of the family issues he had come to address. ‘Not at all’, he replied. ‘You are doing what you should be doing, looking after the earth, Papatuanuku. She’s the mother, your mother. Anybody who doesn’t look after his mother is just a mongrel [a worthless nobody]’.

To Māori the earth is not just soil for growing things, something to be managed in a way that best benefits us. The earth is the mother. That dictates how we should care for her.

I was asked to speak briefly on indigenous perspectives with regard to the soil at the 2019 International Symposium on Soil Organic Matter, from which this special issue of *Soil Research* arises. I am conscious of the context in which this conference met. The decline of the planet’s ecology continues to accelerate despite the best of what science has to offer. The earth’s human population continues to increase and the need to provide sufficient food becomes more challenging each year. What

scientists and researchers are able to offer seems less and less adequate to meet the impending crisis.

In that context it can be useful to have a look at other knowledge systems to see what they have to offer, in particular those peoples and cultures that have lived for many centuries and millennia on the place they call home. Indigenous cultures have built up knowledge and wisdom that is still appropriate for the 21st century, and in fact, may help provide answers to some of the challenges that confront us.

I speak from a New Zealand context, drawing on traditional knowledge from within Māori culture. The basis of what follows is drawn from 45 years of living and working with Māori and learning from them. I am not Māori, but have been entrusted with much traditional knowledge. I am expected to help keep this knowledge alive, particularly by helping to pass it on to coming generations. This is not done in an academic environment, but in wananga – traditional learning workshops – with people who are connected to the land and the knowledge that is derived from it.

That is only one perspective, and even that can have significant variation within the different tribal traditions of New Zealand, reflecting different climate, soils and histories. There are major differences between the knowledge systems in

the warm North Island to those in the much cooler deep South. Within the world context there are many different perspectives, reflecting differences in landscape and history and the adaptations that peoples have made to live with their homelands.

Within these many peoples and traditions there are consistent understandings that most share, even if they have found different words and ways to express them. For instance, many cultures refer to the earth as ‘Mother’; ‘Mother Earth’ as we are wont to say in English.

What I plan to do is to focus on several of these ideas that were of particular significance to this conference.

The earth as mother

I have already mentioned the concept of the earth as ‘mother’. That is a concept that is found in many cultures. In English we speak of ‘Mother Earth’. Many of us grew up hearing that term. But the way we have treated the earth is far from the way that one should treat their mother. One of the things that most disturbs indigenous cultures about newcomers to their lands, is the way that they treat the earth. So often they have seen the landscape that they call home torn apart and manipulated to create a new landscape that better suits the needs of the people who have taken over the landscape from those who preceded them. In New Zealand the settlers rushed to replace the bush that confronted them with the pastures similar to those they had left behind. They saw a land without stories and changed it to suit the stories they brought with them.

A key factor is that traditional people see the earth as a person. The earth is not just full of life; they see it as a living being in itself, a person, with her own wants and needs and gifts. To Māori, she is Papatuanuku, the Earth Mother. The land is peopled with stories. The stories, in one way, are a record of their relationship with it, and in another, a way of setting boundaries to ensure its wellness. What are often regarded as myths and fables can be, in fact, an expression of a philosophy which encompasses the understandings and teachings necessary for sustainability. One needs to learn how to look past the imagery to discover the information they convey.

We are not the masters

Māori express the order of priority in the natural world through means of whakapapa, genealogy. They see the living world as essentially interconnected and hierarchical, differentiating between tuakana and teina, senior and junior. This establishes an order of priority which must be respected for order to prevail. Ignore it and disruption may occur, even disaster. To Māori we humans are the last born, the potiki, the most junior of all living creatures. Utilisation of the earth’s resources is seen in that context; we are not entitled to take without asking, or using without respect.

This contrasts with the human history that most of us are more familiar with. The planet’s history post industrial revolution has been driven by a sense of entitlement and characterised by the unthinking plundering of the earth’s resources in the quest for wealth and power. We live with the consequences of that, climate change and its associated sea

level rise, and even more seriously, pollution which is gradually contaminating the whole planet. The spread of plastic microfibres is an example of that. Māori would describe that by saying that we have trampled the rights of our tuakana. We have upset the balance that is needed for life to thrive, and now we pay.

Mauri: life force – ‘the thread of connection that enables life to thrive’

Mauri is a key concept in the Māori understanding of the natural world. It is often translated as ‘life force’ or ‘life principle’. It could more be described as ‘the thread of connection that enables life to thrive’. Māori science focuses less on individual species and more on the connections between species. The term ‘tīhei mauri ora’, for instance, describes the first cry that a newborn baby gives when it takes a breath and connects to the world outside of its mother’s womb.

It is the concept of ‘mauri’ that may be of particular interest to us at The International Symposium on Soil Organic Matter. More and more, the role of microorganisms in maintaining soil health and enabling species to access nutrients is better understood. I expect Māori would see an alignment, although the concept of mauri does embrace more than a physical connection. However the focus on the interdependence of species to ensure soil health and to combat pathogens and other negative factors does relate to Māori understanding of mauri.

When the mauri is strong ecosystems flourish and can bounce back after severe droughts, fires and floods, for instance. Even though the land has been subject to severe damage it is able to restore itself because the network of connections that sustains life is intact. Growth begins again and before long the landscape begins to recover. The mauri is strong and alive. The landscape does have a backup plan to deal with disasters. When that is eroded or diminished, or even destroyed, the land can remain bare and empty for years. Mauri has been weakened or even extinguished.

An example is on Matakana Island off the coast of Tauranga. An area of leased land had been used to grow maize continuously over several decades; each year the crop’s needs were sustained by precisely prescribed and measured allocations of fertiliser, supplemented by a rigorous spray programme to control weeds. When the owners reclaimed their land and tried to farm it themselves, they found that it even struggled to grow weeds.

This example is reflected by many examples of soils heavily modified over decades of intensive use. More often than not to a layman, it would seem that the seed bank in the soil has been obliterated and the microorganisms that keep the soil alive have been suppressed or even eliminated. Misuse or overuse can turn once fertile lands into deserts.

Mauri is not contained in any particular species, although each species has its own mauri. It is the interconnection between species, how they network together in an interdependent way, that is the expression of mauri. When those connections are damaged or broken the mauri begins to fade; that can happen to the point where the mauri is

extinguished. To give an example, land, once fertile, yet buried for many years under asphalt, has lost its mauri. Even if the asphalt is removed it may be some time before even weeds start to appear.

The whole process of land management is to sustain the mauri, to retain and enhance the connections that enable it to thrive. That means paying attention not only to those species we find useful, the crops we plant for instance, but the other species they live with. We can be so focused on what we need that we overlook what our plants might need to be well. The whole idea of companion planting hints at this. Regenerative farming seems to rely on similar understandings. Like people, plants need their friends and family around them to be well. It is interesting to think of that in terms of the vast monocultures we have created.

In a Māori world plants have rights; even more, they are tuakana to us, senior to us, because they were born or came into being before we did, so their rights take precedence. That might sound a bit strange, but how well do we really understand the interconnections of species that make up a healthy ecosystem? Do we stop to think about that? Rather we manipulate the landscape to maximise its productivity, to increase our profits, and, increasingly these days, do the best we can to mitigate the effects of what we do. That doesn't reflect what happens in nature; the monocultures we have established to maximise and optimise productivity, have few equivalents in nature and these are extreme environments like deserts and The Antarctic Dry Valleys. There is a much greater effort these days to try to work with nature, but more often we effectively ignore it, or even worse, we delude ourselves into to thinking we can defeat it.

Karakia: clearing the way

For Māori the first step in any undertaking, and especially when it comes to planting or harvesting, is karakia; sometimes that is translated by the word 'prayer', but it is much more than that. Those involved prepare themselves so that they can hear and see clearly; then they ask for permission to proceed.

It's not a meaningless ritual, Māori do feel the need to ask permission from the whenua, the earth, before beginning, and postpone or even cancel their plans if the response is negative. The land does answer, and give direction. That's what we do when go to the bush to collect plants for medicine; or clear space for a garden. Does the land want this? Is this good for the land? Can the tree give some of its leaves? Maybe it is a matter of letting our common sense rule our wants and needs. Explain it as you will, asking the land for permission is a key part of how Māori relate to their environment.

We are all born with the ability to hear the land talking. That's an ability we have inherited from our ancestors, when people needed to really understand the landscape in order to survive. People who live close to the land still keep that ability. Ask the old time farmers; some of those who resist the advice that 'experts' and consultants give them, because it is 'not good for the land'. Those old timers may be wrong, in terms of adapting their land use in a way that makes their farms financially viable, but they may be right in terms of the long-term effects that the changes may have on the

landscape and its ability to sustain itself. Many countries, for instance, are struggling with the effects of intensive irrigation that have enabled major changes in the way land is used. In New Zealand the use of large scale irrigation to increase dairy production is a debate that has still to be resolved.

Indigenous people often still retain that ability, and live by what they see and hear from the land. They recognise boundaries they must live within, in order that life can continue to thrive. They realise that for them to be well, the land must also be well; 'ka ora te whenua, ka ora te tangata'. And they accept that at times that may mean accepting hardship, because they have a vision that encompasses not just the distant past, but also the long-term future. We need to take greater heed of what they tell us.

Such people are harder to find in the 21st century. In New Zealand those with that knowledge and understanding are fast fading away and urgent efforts are being made to capture it and re-express it in a way that relates to present day challenges. Each country must accept that challenge, and reconnect to and learn from those people who still retain the traditional knowledge that belongs to their own lands.

I think also that instinctively many of us have an appreciation of what traditional people tell us. We have respect for the land and respect for the life that is in it. However we are compelled, not just by the commercial imperatives that drive much of modern horticulture and agriculture, but also by the need to find ways to provide food for the world's burgeoning population to silence the quiet voice we hear within. We sometimes have to compromise the ideals that we aspire to. But many are beginning to realise that, even with the expertise and resources that are available, we are not succeeding; it seems very likely that if we continue on the path we are on that we may outgrow the planet's resources to provide for us. I do think it is time for us to listen more carefully to the knowledge and wisdom of indigenous people.

There are some interesting developments happening. New Zealand provides us with an example. The traditional outlook of Māori thinking has already found its way into New Zealand legislation. On 20 March 2017 the New Zealand parliament passed the Te Awa Tupua (Whanganui River Claims Settlement) Bill which established the Whanganui River as a legal 'person' with all of the rights, powers, duties, and liabilities of the same. The Act endorsed and illustrated how Māori perceived their relationship to the natural world. The passing of the Act challenged the river people to restore their ancestral river to good health. Changes in land use beginning in the later part of the 19th century had seen soil fertility decline, water quality deteriorate and the soils that sustained life in its catchment increasingly washed out to sea. These impacts profoundly changed the lifestyles of the people that belonged to it.

The Whanganui people regard the river as their tupuna, their ancestor. Their health and well being depends on the river, and the river was not well. In recent years Whanganui has experienced record floods and massive erosion in the catchment. The whole catchment is falling apart. Left to itself the situation would have continued to deteriorate. The

river needed its people to work to restore the connections to enable the land to heal itself.

That meant reducing the number of deer and goats that were eating out the undergrowth in the bush, and the possums that were thinning the canopy and killing the trees. Otherwise the erosion would continue unabated and wash the topsoil out to sea, and the next flood would leave even more homes uninhabitable. But that was only the first step; the task was well beyond the people's resources and abilities; they needed the birds to spread the seed to re-establish the bush that cloaked the land. Much of the land was too steep to be replanted any other way. That then meant controlling the animal pests that were preying on the birds. Only then would the soils start to rebuild and the water in the river come clear. The land and the river would start to heal itself.

The response of the Whanganui people illustrates the way they see themselves. They are not the masters of the land, but they are part of the land; the earth is their mother, the river their ancestor, the trees and birds are all living beings are their brothers and sisters, and their role, as the youngest, is to care for them so that all of the family can be well. It is not a theory; it is how they have always lived. Re-establishing that way of living was the surest way of reversing the decline that was making more and more of the land unliveable.

We are living in a time of crisis. Never before has human technology reached the heights that we now enjoy, and it still surges ahead. Yet never before have there been so many people to feed, nor has land and sea been so affected by the way we have used them. There are dead zones in the oceans where little life can be detected and lands once fertile that have become deserts. As land use intensifies and the amount of rubbish we produce continues to increase, these dead areas will continue to grow, despite our science. We need to take much more heed of those who have been on the land for a long time.

I think there is much to be gained in to getting back to some of those old ways of doing things. Before we embark on our new ventures, a dam or an irrigation scheme for instance, we need to learn to ask the land if it okay to go ahead. That's a bit different from applying for a resource consent. If we can't hear the answer look to those who can, those who belong to the land and know it well. Not just to the indigenous people, if they are still around, but to the old time farmers. They have been wanting us to do that for a long time. Some of the great

schemes that have happened just don't make sense, like dairy expansion in New Zealand on lands that were never going to be suitable, despite how we manage the soils. We have been deluding ourselves for too long. Even the concept of land ownership is a delusion; we might think we own a piece of land, but it will still be there after we are dead and gone, as it has been for millions of years. There is a Māori saying: 'Toitu te whenua, ka ngaro te tangata'; the land remains but man disappears.

We must carry on with our research, it is vital that we do, but with respect, respect for the land, and respect for all living creatures, animals, birds, insects, trees and plants, right down to the microorganisms that we can't see but have always been there. They have been there long before us, they are our brothers and sisters, our seniors, our family, the family of life. If we put ourselves, our needs, above all of these, well, it's just a matter of time before we face extinction.

Conflicts of interest

The author declares no conflict of interest

Acknowledgements

The author acknowledges the invitation and funding from the International Symposium on Soil Organic Matter to present this talk at the conference, held in October 2019 in Adelaide. He would especially like to thank Food and Crop New Zealand for the opportunity to do so.

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Handling Editor: Mark Farrell