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*Pacific Conservation Biology*

### **Supplementary Material**

#### ***Me ora te Ngāhere: visioning forest health through an Indigenous biocultural lens***

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## **Supplementary materials**

### **S1 – full quote**

*“You saw me sniff, that is what it is about it is the smell. It is the wai (water) that is in the forest, in the ngāhere, that helps create the rongoā, Te miringa o te kakara o te rongo (smelling the smell of peace), you can smell that. It's the wai, and the wai comes not only from any springs or awa (river) that might be around, it also comes from the leaf mould. The effect of small branches breaking off, any of the rau (foliage) breaking off, down it comes, you and I go in there and we accidentally break something off that's there. That decomposition process creates its own wai, that is the smell.” (Whaea Olive Hawira Pers. Coms Nov 2019).*

### **S2 – full quote**

*..... we would have karakia in the carpark, whakapiri (gather together) talk about the kaupapa (subject) and then as soon as we entered past the carpark we weren't allowed to speak, we were told to open our senses and let the ngāhere speak to you. There was no conversation between anyone, everyone just had to walk up to the dry lake, then when we hit the dry lake we could talk about what the forest told us as we came in, basically it was about opening up your sensory observation skills and letting the ngāhere talk to us ....*

*Deb Te Raki pers. comms 2019*

### **S3 – full quote**

*.. because we have lost that skill, or we don't have that skill, or we haven't been listened to, so it's been lost to us, of actually articulating what we want and what we expect. How do you convince DOC that a cultural harvest is relevant? In terms of the manaaki of our own people, even for rongoā, to see our people quietly going out and gathering what they are doing and me sitting guard out on the road saying, hurry up, hurry up.*

*Anonymous pers. comms 2020*

### **S4 – full quote**

*I think in terms of manaaki tangata and manaakitanga our ngāhere on the farm is probably in the same situation as our ngāhere out at Karioi in that the stock have been allowed into it for a start. A lot of the kai that we would have formerly gathered is no longer available to us. Also, we no longer have free access to harvest the kai that we would have harvested, and I think of things like pikopiko. Olive Hawira 2020*

### **S6 – full quote**

*'So, the expression of our land, and our ngāhere, and our rivers loving us with all of their energy and their mauri to help support us as humanity, in the converse it's trying to encourage ourselves as humans to kind of reciprocate that and love them back. That I think, is where the real potential of healing, of allowing our planet to heal, and healing for our people kind of comes from.' Keith Wood pers comms. (2020).*

## S7 – full quote

*One of the things I've always been an advocate for is finding those cultural measurements and aligning them to the science stuff so we can equally battle in the environment court or under the Conservation Act or whatever it is to ensure that the right things are done for the health of our whenua (land) and Papatūānuku (Mother earth) and our waterways and our puia (geyser, volcanoes). Keith Wood pers. comms 2020.*

## S8 – Text

The following are the understandings defined by the kaimahi of the cultural themes:

### *Rongoā – medicinal*

Maintaining their cultural practices in the forests; of *rongoā rākau* (traditional medicine tree's plants, based on *rongoā rākau*). The ability to access medicinal plant species in these areas was a key theme, so they noted the presence or absence of plants used for rongoā. In the interviews, species that were no longer present, along with their known uses, and surrounding protocols were of most interest.

### *Manu – birds*

This entails observation about the presence of the endemic bird life past and present in their forests was important, for example *taonga* (sacred and special) species such as *kiwi*, (*Apteryx mantelli*), *kererū* (*Hemiphaga novaeseelandiae*), and *tītī* (*Atrina zelandica*). The decadal revealed changes in abundance of the birds over time, and through recording whether *taonga* species were seen and heard at the sites. It revealed whether birds were being sustained by the habitat, as tied to the abundance of their key food sources.

### *Ahua o te ngāhere – the nature of the forest*

The overall well-being of the forest to sustain its flora, fauna and human populations physically, mentally and spiritually was of greatest concern to the Ngāti Rangi people. Observations identified here were the overall characteristics of the forest, comprising its various layers, the condition of its floor, and its resilience to pest species and diseases. These observations provide an overall condition of the forest health.

#### *Wai – water*

The assessment of water within the forest area was perceived to be tied to the observation about the overall life state of the forest. These observations relied on the senses of smell and touch to assess the viability of the *mouri* or living force of the forest.

#### *Tāngata – people*

Ngāti Rangi describe the ability to have cultural interactions within their forests, and the impacts people have had on the forest over time and in the present. *Whānau* shared knowledge about how their ancestors and grandparents used the forest in the past, and described anthropogenic changes created by activities such as milling, and deliberate planting (e.g. of exotic trees such as pine (*Pinus radiata*) plantations replacing native species)

*Mouri* is the relational web of connections that sustains all life. It is defined as the life principle, or vital essence of being. It can be a material symbol of life and can represent a physical object, individual, ecosystem or social group in which the essence exists. Making an assessment on the *mouri* state of the environment generally and about individual species was a key mechanism to measure the wellbeing of the forest. It was also a measure of the ability of the forest to sustain itself, along with that of tribal members, who relied on the forest for sustenance.

*Manaakitanga* is displayed through oneself, family or tribal unit through acting with kindness, generosity, hospitality, being supportive or demonstrating the ability to exhibit respect for another person, family or tribe. *Ngāti Rangi*'s definition of, *manaakitanga* is the ability to support the physical, mental and spiritual wellbeing needs of the *iwi*, *hapū* and *whānau* through the active utilisation of tribal forests to sustain their health and wellbeing.

An example of this is through the enacting of traditional practices such as wild food harvesting (e.g. this now includes introduced species such as red deer (*Cervus elaphus*) and feral pig (*Sus scrofa*), *scofa*), gathering *rongoā rākau* and utilising plants for other cultural practices such as weaving.