

Hey! Guess what? There's new HANZ merch! Get a picture of our endemic red admiral butterfly on shirts, mugs, phone cases and all sorts of things! Just go to historyaotearoa.com and click merch in the menu!

Kia ora, gday and welcome to the History of Aotearoa New Zealand. Episode 52: Foraging. This podcast is supported by our amazing Patrons, such as Neville. If you want to support HANZ go to patreon.com/historyaotearoa. Last time, we talked about the most important cultivated plants that Māori grew, kumara, taro, gourds and yams. We also talked a bit about the phases of Māori horticulture and finished off with a discussion on the naming of various flora and fauna. This time we are going to venture beyond the garden path and talk about foods that were foraged from the bush rather than cultivated. Well, I say beyond the garden path, as you will find, it's not quite that straightforward.

Māori foraged all sorts of different foodstuffs from the bush, things like wild ferns, vines, fungi, fruit and seeds. Some of these we will talk about today but the food we will be spending most of our time on will be *Pteridium esculentum*, more commonly as the bracken fern. However, we aren't interested in the leafy part of the fern. What we want is the part of root called the rhizome. The rhizome of a plant is basically a central hub of where lots of different roots and shoots come out from as it sits underground. A common example of this is ginger you get in the supermarket. However I'm not really going to refer to the plant by any of those names, I am going to use the other common name that you see a lot in the literature, fern root. Or I'll use its name in Te Reo, aruhe. Aruhe was extremely important to pre-European Māori, so much so that Joseph Banks wrote that it was "the foundation of their meals," as well as "to be to them what bread is to us." And that seems to be the consensus in other sources. The fern root was THE most important foodstuff Māori had access to, potentially even more important than kumara. Which I realise is quite the bold claim to make given how much I have talked kumara up in previous episodes, but stick with me here.

What we find is that cultivated foods like kumara may not have made up the primary part of the Māori diet, even in areas that were prime spots for horticulture. This was actually initially brought to attention by our good mate Best, though he didn't rule out that all important regional variation, where cultivated food may have in fact been the primary source sustenance. So what were they doing with all that kumara? Well, it seems that they may have been seen more as delicacies and may have only been eaten sometimes throughout the year. Such as when they had important guests visiting or when there was a bumper harvest. But thing is, Māori weren't just eating fern root cause they could, there had to be a reason. That reason most certainly was not the taste, apparently it had a much worse flavour and texture than that of their regular cultivated plants and it took a lot of preparation to get it ready for eating. Which I'm guessing means get rid of the nasty taste. The way they did that was by adding kauru, that sweet, chewy substance made from cabbage tree taproot that we talked about in a first few episodes. No, fern root became a staple because it was much easier to obtain than cultivated foods and this was for a few a reasons. One was that kumara and the like had to be managed, maintained and stored, all things that took time and energy to do. Fern root still required a large amount of effort to get, you had to dig it out of the ground after all, but it grew bloody everywhere. It wasn't really that hard to find. Particularly given that the other reason it was favoured was that after a couple of years of cultivation gardens had to be left fallow for a long time, anywhere from 14-25 years or longer. During this time aruhe would take over, then when it was time to go back to the garden to reuse it for cultivation, the new growth would be burnt off and the rhizomes dug up. Other plants would have grown during this period as well that would have been burnt off and its thought that this may have helped the fern root grow even better as their roots could go quite deep and avoid being dug. On the face of it, this is pretty good, you get kumara when

the nutrients in the soil is plentiful and fern root when it isn't. However, aruhe has wiry roots that would make a kind of mat in the soil as they grew. So the more Māori burnt off and let fern root grow in their gardens, the thicker this mat got and as such the harder it got to return to cultivation again. The result of this was that 19th century Māori, rather than dealing with the rampant aruhe in their fields, just burnt off more bush for more farmland. So the more they relied on fern root the harder it became to grow crops which may have had a pretty significant impact on their horticultural system. By this time though Europeans had turned up so there was a lot of other stuff going on that meant that didn't really happen. And before I get the racists too excited, no, I am not in any way suggesting that Europeans 'saved' Māori from themselves, their culture or that Europeans civilised Māori with their technology. Māori more than likely would have figured it out, people are smart. They had already crossed an ocean and figured out how to grow tropical crops in place they weren't really meant to grow.

Aruhe was mostly foraged for in spring when it was at its biggest, about half to a metre in length and as thick as a finger, so quite long and thin. In saying that though, not the whole rhizome was used, the parts deeper in the ground were the bits more preferable for eating but this could yield up to 45cm of produce! In comparison, kumara was described as being finger shaped and often recorded as quite small, definitely not as large as what we see in the supermarket today! Comparing kumara to fern root, you do find that the latter gives a higher yield, however you do need to consider spacing of the plants, how many tubers you get per plant, how much land is needed to produce X amount of tubers and all that. But in lieu of going through all that boring analysis, just trust me, aruhe is the winner in terms of yield here. When the fern root was dug out of the ground it was sometimes dried in the wind for two weeks, being shielded from the sun and rain. After this it could be safely placed in storage for years until it was needed. In fact, some people said it was better to eat a year after it had been dried!

As you might expect, this wasn't always the case and certain areas did favour other food sources or had others fill the niche that fern root occupied in other regions. For example in the South Island, large areas of fern root didn't really occur until the late 19th, early 20th century and so relied on other food sources. The one exception to this was Tasman Bay, near Nelson, which had pretty good growing conditions for aruhe and kumara. People in the Urewera forests also found that fern root wasn't that plentiful and relied on other foraged plants as it was a bit too cold there for most cultivated food.

One of the interesting things about all this cool information about aruhe is how we got to know some of it, like which areas had lots of fern root consumption and others didn't. I'll posit that question to you first before I answer it, how would we know what people were eating hundreds of years ago? You can't look at their stomach contents cause we don't have a body or stomach to analyse, so what other product of food consumption could we use instead? Have you got it? If you answered a big ol' pile of poop, congrats! In this case it was fossilised poop and this kind of analysis is used for figuring out the diet of not just people but animals as well, sometimes even when it is a bit fresher! Another way we can find this out is by looking at the teeth, which would develop what's called a fernroot plane caused by how abrasive aruhe is. Specifically this is where the first molars on both jaws and even the adjacent teeth become worn out on various parts of the tooth, which may be as a result of how Māori chewed fern root specifically. Kinda like how you don't chew gum with your front incisors.

Aruhe wasn't the only foodstuff that Māori were foraging, there were lots of other things in the bush that were worth eating as well, if you knew how to get them. The one we have talked about before is the cabbage tree, known to Māori generally as tī with some sort of suffix to denote a specific

species. Of the three species we will mostly be talking about, tī para and tī pore were introduced from somewhere in the Pacific. Best, who spends quite a bit of time talking about this in his articles, theorises that tī pore came from the Kermadec Islands and mentions that Māori said tī para came on the waka Aotea, though others said it came on another waka called Nukutere. Either way, it was well known that these species weren't native to New Zealand, even if they didn't use that word in particular. Tī pore is *Cordyline fruticosa* or *C. terminalis* depending on how old the literature your reading is. On the other hand, tī para or tī tawhiti or tī kowhiti depending on the region wasn't formally described by Best's time and from a quick google, that may still be the case. These were the two main cabbage trees that Māori favoured for eating. Both of these are different to *C. australis*, tī kōuka, the one we talked about way back in our early episodes. This one is endemic to New Zealand so it isn't found anywhere else in the world. I'm going to refer to cabbage tree as just that or as tī when I'm not really referring to any particular species and mention specifics when needed.

Although most foraged food wasn't really cared for in anyway, cabbage trees did have some small amount of management. They were planted quite purposefully by Māori near settlements as a food source, though after that they weren't really looked after in any way. You can actually still see evidence of this around the country with trees that are currently standing resulting from those initial plantations, though Best does say that he is unaware of any tī para growing in the wild so it's possible it was limited to areas that were a bit warmer due to its more usual tropical climate. Best actually tried to grow some that he found in an abandoned garden having taken some clippings from it. He grew it until it was about a metre tall, which isn't very tall for a cabbage tree but it was at this point that he decided to cut it and take it to someone who knew how to prepare it for eating. He said that it had a sweetish taste but a "decidedly bitter after taste". This may have been because tī take about three years before they are ready to harvest and I'm fairly sure he didn't wait that long. The part that Best was probably eating is the taproot, the central, dominant root of the cabbage tree that all other roots come out from. The lower parts of the roots would be left in the ground to allow the tree to grow again and in fact the tree would often be planted over rocks, as well as damp soil, to stop the roots going too deep. Why this was, Best doesn't elaborate but maybe it was to make it easier to dig somehow? Either way, once the taproot was removed and its outer layer taken off, it would be soaked in water for a day before being put into a hangi for another day. Sometimes they would also be dried before removing the outer layer. After removing from the hangi they would be pounded or chewed, washed and then squeezed to get the nice sweet stuff to come out. This was the part that was often put on fern root to make it taste better.

The other way Māori would eat it is by wrapping the taproot in leaves and placing it in a large communal hangi about 2.5m in diameter, which all the local families would use. The problem was of course, how do you tell which bundle belongs to who after everything has been buried and then dug up again. Well, the way they solved that was by tying the bundles together with unique knots, making it easy to distinguish which family should be grabbing which bundle. After the bundles were cooked they would be dried and stored until they were needed. When they were pulled out to eat they were pounded and placed in a bowl or other vessel of water so that the meal and fibres could be separated by rubbing and squeezing. This process was roughly uniform across all tī species. This particular way of eating the taproot may sound somewhat familiar again if you remember back to our early episodes kauru was a sweet substance that was sometimes called Māori liquorice. This was also made of the taproot of cabbage trees and I believe is what Best is describing here, however he does say that this process was only in reference to *C. australis* so, who knows. For kauru, it was often eaten as a sweet on its own, either by chewing or sucking on it before being spit out and it's possible fern root may have been eaten the same way on occasion. Early missionaries also may have made beer from it too!

Tī also had a bit of ceremony around its cooking as well, such as not using rewarewa, New Zealand honeysuckle to heat the hangi. This is apparently because when the wood decayed it became phosphorescent, giving off light. This would look kinda similar to a glow worm, who were the children of a mostly negative god, probably the god of secrets, whispers etc. and it would indicate that the next crop would fail. Talking about some species more specifically, tī para, *C. terminalis* and *C. pumilio*, the dwarf or pygmy cabbage tree, didn't really grow in the South Island, that was pretty much only *C. australis* territory. These species in particular could be prepared in a slightly different manner from the one mentioned before whereby they were covered in hot ashes, baked, pounded and then the fibres separated. They were then put on a mat to be sprinkled with honey or nectar from flowers of harakeke. The sweetened meal was then shaken out and placed in bowls for eating. It's at this point that Best mentions the no sex when steaming rule, something we again mentioned in reference to kauru way back. So I'm led to believe this is all somewhat related.

Of the other species, *C. banksii* leaves were eaten when the plant was quite young and *C. indivisa* also had the upper part of the trunk eaten as well. According to Best, the tī that Māori preferred to eat, in order from best to worst were: *C. terminalis*, Tī para, *C. pumilio*, *C. australis*, *C. indivisa* and *C. banksii*. The other way tī was used was to attract birds. They would be planted near settlements which would encourage birds to come and nest in them who would make a good, easy to access source of meat.

Other plants that Māori were foraging were things karaka berries that we have mentioned a few times every now and again. These would be planted around villages and even within them as a form of shade but it also meant they had ready access to the berries, some areas cooking quite a lot of them. For this reason, karaka wasn't really seen too much outside the kainga, at least as far as Māori foraging was concerned. The fact they were planted within settlements, probably in reach of children, is pretty interesting cause if you recall karaka berries are actually poisonous and more recently it has gotten a school here in New Zealand in trouble for having them growing on the borders of the property. So I'm guessing there was much education to the tamariki, children, on why you shouldn't eat the berries growing on the trees near the whare. Best explains that Māori told him that the karaka plant was introduced and brought with them from Polynesia to Aotearoa. This seems to be a bit muddy as karaka is native to New Zealand and some of its outlying islands, or is just native to Northland and introduced south as Māori migrated in that direction. It depends on who you ask. It's also possible that it was introduced from the Kermadec Islands as well, so maybe that's where the story comes from. I should also note the reason I say it is native, rather than endemic to New Zealand, is that karaka is naturalised and considered an invasive species in Hawai'i. What's a bit funny about this particular section of Best's article is that he says karaka was introduced via 'deep sea vessels' which makes me think of submarines but I'm fairly certain Polynesia didn't have those yet. Either way, he does list off the Aotea, Nukutere, Matahourua, Takitimu and Tainui which are all waka from the Great Fleet, so we can rest assured he was talking about large Polynesian canoes and not hard metal rods full of seamen. As I hope you know by now, karaka had a pretty involved process to make it edible and remove the poison, which would be done by steeping the berries in water, removing the pulp and then steaming the kernels for quite some time. This was a pretty good idea as the poison can cause muscle spasms, lock the muscles in contorted positions, violent convulsions and even death. The reason this method of preparation worked is because the poison, or at least the important part of the poison, is destroyed when heated about 100C. So although Māori weren't explicitly aware of that fact, they did understand it in a different way and had worked out the important bit; heat it up real hot and it's safe to eat. This is something you find all across the world in various cultures, particularly in terms of medicine and germ theory. For example in medieval Europe, honey was sometimes rubbed on wounds or injected with other things to cure various

ailments or prevent infection. People didn't know explicitly why this worked, they just knew that it did, so they kept doing it. We would later learn after germ theory was established that the disease these people were trying to prevent were caused by microscopic bacteria and that honey has anti-bacterial properties.

Overall, it's actually really hard to know what foods Māori were foraging prior to European arrival. Foraged foods don't tend to leave much archeological evidence in the same way cultivated foods do. You know, they have gardens which have fences, changes in the soil composition and all that sort of stuff that makes them just that bit easier to track. Foraged foods on the other hand are just found out in the bush, picking them up when you see them so they don't leave that same record, with aruhe being that mild exception.

Next time, we move a bit more forward in time to after European arrival. We will see how the introduction of all those different crops and food from the other side of the globe had an impact on Māori horticulture and society in general.

If you want to send me feedback, ask a question, suggest a topic or just have a chinwag you can find my email and social media on historyaotearoa.com. This podcast is a one man band, if you enjoy listening to me talk history, you can support us through Patreon, buy merch or give us a review, it means a lot and helps spread the story of Aotearoa New Zealand. As always, haere tū atu, hoki tū mai. See you next time!!