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Food Storage

A means of storing food for winter was vital for the settlers' health and survival. There are regional variances in some of the storage pits, with those at Papamoa being a range of small, differently shaped pits including bin, bell and rectangular shaped examples. These were made predator-proof and probably stored mainly kumara. The small size may be reflective of the difficulty of creating stable pits given the sandy nature of the soil. Kumara starch grains have been discovered in materials from both pits and in mixed gardening soils.

By contrast, at Cook's Cove evidence of gardening and kumara starch was uncovered, but no storage pits. However, these are evident in the surrounding landscape and on the associated hill top pa.

Cooking up a Treat

Evidence has been exposed that both open fires, for roasting and grilling, along with umu, or earth ovens, were used to prepare meals. This has been a consistent finding from Tauranga through to Gisborne.

Preparing the Fish

Fish were scaled, gutted and sliced using obsidian flakes, a versatile tool for food preparation. Used at Cook's Cove, Bay of Plenty and Coromandel sites, it is a volcanic glass with similar properties to modern glass, and mainly sourced from Tuhua (Mayor Island). For those settlers with easy access, it became a valuable trading commodity.

Waikato's Distinctive 'Moonscape'

Long used as the main highway to the interior, the Waikato and Waipa Rivers significantly influenced the settlement patterns of pre-European Maori. Typically, small defended pa and gardens are found along the river banks, utilising the favourable alluvial soils.

The borrow pits are part of these landscapes – a distinctly Waikato gardening feature. A description originally used in the construction industry, they are a near-circular archaeological feature formed when sand and river gravel were dug out by Maori for use in kumara-growing puke (mounds). As a staple in their diet, without this technique, efforts to grow a plentiful kumara crop would likely have failed.

The defining archaeological landscape in the Waikato basin, borrow pits are found in clusters and are of regional and national significance. They represent an adaptation of tropical horticulture and cultivated plants to an inland temperate zone. While a small number of localised examples are found in other areas of New Zealand, the association of pa with prehistoric gardens



A high concentration of well-preserved borrow pits located on the west bank of the Waikato River, Kernott Road approximately 10km north of Hamilton. Photo: Gail Henry.

New Registrations Reveal More Place-Based Stories

The following registrations were confirmed by the NZHPT Board in March and April. We invite you to visit our website: www.historic.org.nz and know that you will enjoy reading some of the fascinating historical information now available for these buildings.

To search for information on these and other registered places, please follow these simple instructions:

- enter www.historic.org.nz into your internet browser;
- at 'The Register' click on > read more;
- at 'Quick Links' on the right hand side click on >> Search The Register
- Enter Property Name or Register Number, and/or Location
- Click 'Search' button

Christ Church (Anglican), Kihikihi
Category II registered building #744

Tamahere School (Original Building), Tamahere
Category II registered building #742

Legal Chambers (Former), Cambridge
Category II registered building #4342

is only really found in the Waikato. It has this country's most extensive areas of modified soils and borrow pits, and the only inland horticultural systems of any size.

Unfortunately, the focus of development along the river margins has destroyed much of this landscape, but some clusters of borrow pits have been identified and protected, some commendably, by private land owners.

Local news for Waikato, Bay of Plenty, Tairāwhiti & Hauraki Members No. 28 Winter 2011

Keen Observers

A thematic approach to place-based heritage stories often highlights interesting parallels, as it has as we continue the 'foodie' tastes of heritage and look at the growing, gathering and preparation of food by early Maori settlers. It has been interesting for me to realise that the techniques for preparing the land for horticulture are shown to be similar along the east coast stretching from Coromandel to Gisborne. Similarities also reflected in the food gathering techniques developed, despite a time span of several hundred years in the settlement dates. But, as could be expected, there is a strong contrast when moving inland to parts of the Waikato where the moonscape paddocks scattered with borrow pits form unique cultural and archaeological landscapes.

The food-related stories in this issue have drawn on information gleaned from archaeological excavations, as well as from oral tradition and knowledge, such as with the Ngati Pikiāo story shared by Maori Heritage staff member, Jim Schuster, around koura (freshwater crayfish) fishing on the Rotorua lakes.

Listening to the koura story I was particularly struck by the acute observational skills that were demonstrated by early Maori settlers. Likely such skills were honed over generations around the necessity of a mainly subsistence lifestyle. But they were skills that have stood the test of time. Fishing and snaring techniques may have been refined by use of modern materials, but the same astute skills continue to be used today, as the koura story graphically illustrates.

Gail Henry, Area Manager



This eroding midden at Cross Creek graphically highlights the vulnerability of these early coastal sites. Photo: L Furey.

Early Sophistication at Opito

On the Coromandel Peninsula's east coast, the Cross Creek archaeological site, situated on the toe of a dune in Sarah's Gully at Opito, is an extremely significant site. There are six clearly defined and separated cultural layers of settlement at the site and in 2008 the earliest (lowest) layer was radio carbon dated to around AD1300, but possibly earlier.

Archaeologist, Dr Louise Fury, believes the earliest estimate of settlement to possibly be within a few years of Polynesians arriving in New Zealand; placing the earliest arrivals at the late AD1200s. This is earlier than the Kaharoa eruption (circa AD1300-1325).

Cross Creek is one of the oldest known surviving sites on the Coromandel Peninsula. Many coastal sites in the area have been compromised by a mix of both erosion and beach development.

Such early settlement was possibly influenced by the interest in, and use of the basalt from nearby Tahanga. Some large cutting tools from the area were shaped from basalt and it is thought that adzes were traded out of the area by specialised craftsmen working on the Coromandel Peninsula.

Other tools uncovered show a variety of materials from several locations, but with obsidian from Tuhua the main source, with examples also from Great Barrier, Hahei and Whangamata. Locally obtained chert was used on the Kuaotunu Peninsula and various other localities.

In terms of gardening, the nearby site of Skippers Ridge, excavated in the 1960s, had kumara storage pits which have been dated to around the early 14th century. Not only were Polynesians gardening in the area, but they had also developed quite sophisticated technology compared to later sites, for storing the kumara tubers underground during the winter. It features round and rectangular pits with small connecting passages, as well as rua or cave-like pits; while at Cross Creek the pits were small and bin shaped.

Gardening may have been widespread in the coastal margins of the Coromandel Peninsula – a swamp at Whangapoua Harbour, not far from Opito, had evidence of forest clearance soon after the Kaharoa eruption. This is in line with practices in the Bay of Plenty and further south at Cook's Cove. Diet-wise, apart from regional differences, fish and shellfish

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A Cunning Technique to Lure a Fresh Water Delicacy

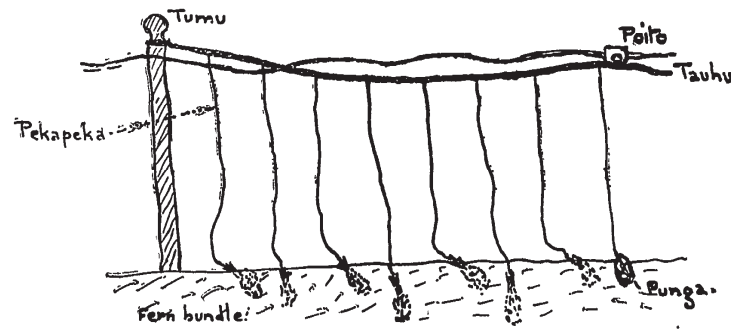


Image: the tau koura. Te Rangi Hiroa (Sir Peter Buck), "Maori Food Supplies of Lake Rotorua", Transactions and Proceedings of the Royal Society of New Zealand, vol. 53, 1921, pp. 433-451.

In pre-trout days Rotorua lakes teemed with fresh water delicacies including shellfish, crustaceans, and fish that were far more appetising to the Maori palate than the introduced trout that displaced many of them. The most sought after were koura (freshwater crayfish, *Paraneohrops planifrons*), found in great numbers in the Rotorua lakes. The season for netting plump juicy koura is November to March.

Tau is one of the remaining ways to catch koura and involves harvesting and drying the fern (*Pteridium esculentum*), the nehu (pollen) of which koura feed on and is believed to be what fattens them. So sought after were the ferns that, in earlier times, battles were fought for possession of such grounds. Bundles of fern are carefully pulled from the ground and left near the lake shore to dry (*ki tatahi tahua ai*); this takes about a week. Once ready the fern stalks, with leaves intact, are bundled together with aka (strong vines) including a long stem that runs down the middle of the bundle, reaching from the lake bed to the surface, and resting on the lake bed where the koura swarm in between the leaves. There was usually a tumu (post) marking the crayfish grounds and the tauhu (ridgepole) was attached to this, the other end being fastened to a poito (float).

The trapped koura are harvested using a korapa (handnet) that is shaped like a large tennis racquet minus its handle. The frame is made of Toatoa (*Phyllocladus toatoa*), that has a springy, elastic fibre. The two ends are brought round in an oval, lashed together, and strengthened by a crosspiece a few inches above this binding. A flax net, with very little bag in it, is stretched across the frame. This net was carefully



positioned under the fern clump so that as the koura came to the surface and were exposed to the air, and released their hold on the fern, they fell into the net rather than diving back down to the lake bed.

Due to modern day boating regulations, and for security of the catch, the whole tau koura is now placed on the lake bed. A length of copper wire replaces the tauhu and the korapa is made with an aluminium frame, wire and synthetic netting materials. A series of landmarks, rather than a poito, mark where the tau koura lies.

Within the Rotorua thermal district the captured koura are placed in a large bag or tukohu (woven cooking basket) then steeped in a ngawha (boiling hot pool) for 7-10 minutes. Elsewhere, depending on the number of people to be fed, koura are boiled in a pot or large copper with a dash of salt added for flavouring. At large gatherings, koura are served as a kinaki, a delicacy or relish to the main course. Visitors from elsewhere look forward to koura on the menu when they are in season. Normally a tau koura harvest was enough to share amongst several families.

The Transactions and Proceedings of the Royal Society of New Zealand 1868-1961, volume 53, 1921:
http://rsnz.natlib.govt.nz/image/rsnz_53/rsnz_53_00_0558_0438_ac_01.html

Jim Schuster, Gail Henry



Above: the tau koura. The korapa being slipped down between the canoe and the fern bundle, still submerged.

Below left: the canoe has been replaced by the dingy, and the korapa (handnet) is made of modern materials, but the techniques are unchanged Ian Kusabs and Willie Emery. Photo: NIWA Research. Below right: tau koura. The catch from one fern bundle. Note the marau (grappling hook) held by one of the men.

Images above left and right and below right http://rsnz.natlib.govt.nz/image/rsnz_53/rsnz_53_00_0558_0438_ac_01.html



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were a staple part of the diet, with snapper the most sought after, but with kahawai, leatherjackets, trevally, barracouta, tarakihi and mackerel also in the diet.

Moa were evident, but only in the early layers as extinction was indicated around AD1400, as was the case with the giant limpet (*Cellana denticulata*) which was no longer evident in this area after around AD1450.

Early settlers on the Peninsula used large earth ovens for steaming big joints of meat, but also smaller fire scoops to cook food over a flame – our earliest form of barbecue.

Fishing Kit Precious

The time and skill needed to fashion tools and nets for fishing meant that hooks, nets and sinkers were really well cared for, as this 1842 extract of Captain A.D.W. Best highlights, "...the care with which they preserve their fishing nets was also worthy of remark – every net being placed on a little elevated platform and then securely thatched over."

Prime Coastal Real Estate Since AD1300

Just as it is today, the North Island's east coast was a popular place to live in prehistoric times. This means some of our most important archaeological sites are to be found on the coastline. The information for this article is drawn from recent excavations in the Bay of Plenty and Gisborne areas.

In reading these reports it is interesting to realise that despite different arrival times, just how many similarities there are in the farming, harvesting and dietary preferences of the earliest Maori inhabitants along this stretch of the East Coast. Settlement dates vary with Cook's Cove on the coast near Tolaga Bay believed to have first been settled around AD1300, the Otumoetai Peninsula in Tauranga also some time in the 14th century, through to Papamoa, south east of Mount Maunganui, beginning in the mid-15th century, about AD1450.

One of the common factors is the sandy soils suitable for growing kumara, which became a staple crop because of the free draining soils and warm climate. At Papamoa, taro, another important crop brought from Polynesia, was grown on the swampy edges of the Wairekei Stream, now a reserve. As well as kumara and some taro at Cook's Cove, vitamin rich (A, C & iron) puha or rauriki, a plant native to New Zealand, and dandelion (vitamin A rich) were part of the diet. This is known from identifying pollen samples from the excavated soil.

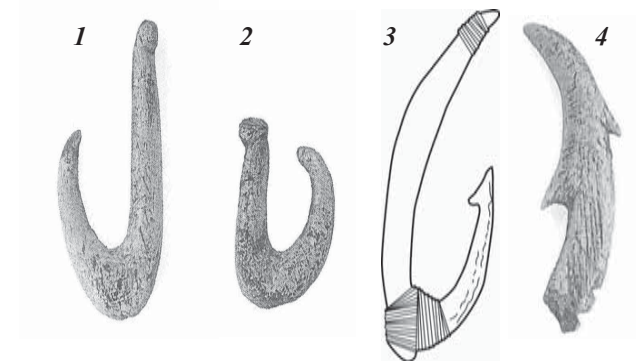
One commonality that has been discovered, through various excavations along this coastal strip, is that these first settlers all used fire to clear bush and forest to prepare land for settlement and gardening. Such clear

evidence comes from a charcoal rich soil layer within the sites and wider landscapes that coincides with the arrival of people. It is also thought that evidence of a number of temporary sites, used intermittently over time, was likely to have been in order to avoid over-cultivation and to allow the gardening soils to recover their nutrients; just as we use crop rotation in today's veggie patch.

Harvesting the Sea

Papamoa's earliest fishermen made good use of their sailing skills for offshore fishing which, along with shellfish gathering, formed an essential part of the diet and economy of the prehistoric locals. Fish bones excavated from several sites over the past 20 years tell us that the main species were mackerel, fished using nets; then snapper using a hook and line, with barracouta and kahawai from by-catch in the nets.

It is unusual that not many bird bones have been found at the dune plain sites and is one of many questions still left to be answered. In contrast, bones identified from a recent excavation at Cook's Cove included many of the same fish species, but also moa, Polynesian rat, seal, dog, sea lion and tuatara as well as a wide variety of forest and sea birds. However, the content in the different occupation layers shows that by the mid-1400s marine mammals, moa and other birds were less frequently on the menu.



Fish hooks uncovered at Otumoetai Pa, Tauranga. Photos 1, 2 and 3: NZHPT; image 3: D Bixley, Magma Design.

After moa became extinct there was a shortage of material for making one-piece hooks (1 & 2 above) which led to the development of the two-piece hook (3 above). The hook was separated into two parts with a small point made of bone (4 above) coupled with a large shank made of wood. The small points found at Otumoetai would have been attached to wooden shanks. Two-piece hooks were probably imported as part of the fishing kit of the Polynesian settlers, but it is likely the shape was changed and adapted as the settlers came to understand the behaviour of New Zealand fish.

The people of Otumoetai Pa were also keen fishermen, with fish featuring strongly in their diet. Bones excavated from the site show that, like the people of Papamoa, snapper was popular. Species not found at Papamoa to date, but evident at Otumoetai, include tarakihi, red gurnard and trevally.

A significant collection of both one and two-piece fish hooks was discovered during excavation at Otumoetai Pa (see above).

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