
Kauri experiences

Agathis australis, the New Zealand Kauri, is one of the giants of the tree kingdom and revered for its age and stature.

MICHAEL A. A. BANKS writes¹ about a little known characteristic of the tree and his experience of harvesting gum on the farm where he spent his childhood, Surrey Hills, and the giant trees that grew there.

Many stories have been written about our NZ Kauri (*Agathis australis*). For my part, the earliest I remember about Kauri, was not the tree but Kauri gum.

On our farm 'Surrey Hills', some ten miles west of Huntly in the Waikato, Dad ploughed many of the paddocks for winter turnip crops to feed the small herd of milking cows. During ploughing, lumps of Kauri gum were exposed, and Dad would stop the tractor to pick up the larger ones to take home. He would tell us to go and have a good look around the area for other pieces. Off we would go, scouring the paddock and picking up small pieces from the size of small eggs to that of a large hand. We would take these home, take the pieces to the shed where we scraped and washed off the dirt, then let them dry before bagging them. Eventually, when the bag was full, Dad would take it into Huntly, sell the gum and give us each about a pound pocket money. As an estimate the export value of Kauri gum was about £56 a ton, which is \$9.15 per kg. Not a lot of money in today's terms but remember our pocket money was only one or two shillings a week in those days.

Kauri gum collection became an important industry from 1850 to the 1930s but was nearing its end by the

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The younger of two Kauris in 2017 on the 'Surrey Hills' farm which was 20.4 m tall and had a diameter of 86 cm.

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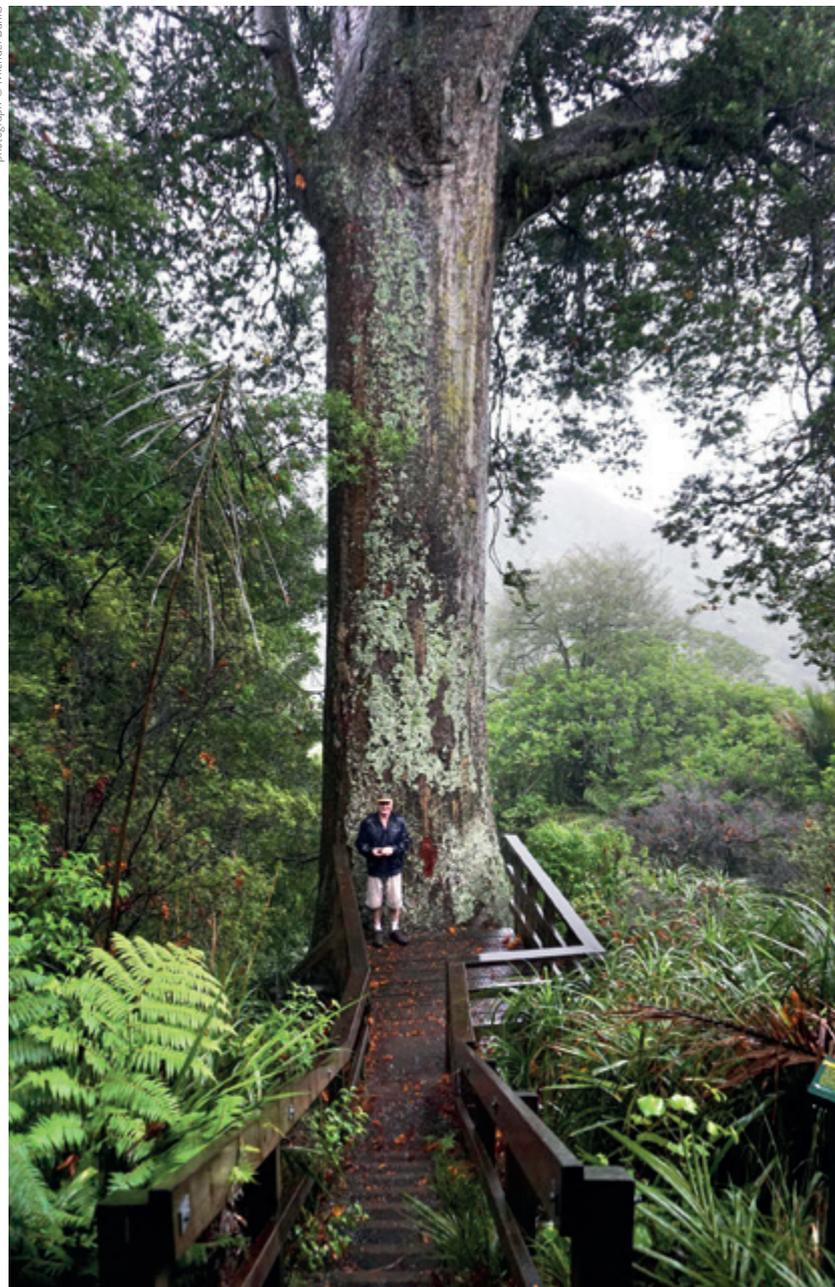
Opposite.

The older of two Kauris on Surrey Hills Farm survived due to its inaccessible location on the farm boundary. In 2017 it was 23 m tall and had a diameter of 80 cm.

Right. The stand of *Agathis australis* on Leighton Broughton's neighbouring farm in 2017.

1950s. The gum was exported and made into a high quality varnish and later used in flooring linoleums.

Surrey Hills Farm had little in the way of native forest other than Manuka on the steep hillsides, too steep for the tractor to plough. The house section, which was approximately an acre in size, was originally protected from the westerly winds by a row of large macrocarpa trees (*Hesperocyparis macrocarpa*). It had a very formal landscape, with a circular rose garden that you could see from the kitchen window. From the back door a straight path led to the milking shed and sheep-yards and beside the path was the large vegetable



Hakarimata, the 1,000 year-old Kauri near Huntly in the Waikato region of New Zealand.

garden. From the front door, you stepped down to a circular lawn surrounded by a box hedge and a path led down to the road frontage. There were a couple of orchards as well. Much of the area was left to nature and a small number of large trees, native and exotic, grew in these areas, notably Puriri, Pohutukawa and Rimu. Shrubby trees like Karo, Tarata, Kohuhu and Totara also grew in these areas and proved to be ideal for little children to play hide-and-seek in.

To the south west of Surrey Hills homestead there is a 400-metre-long limestone bluff that forms the farm boundary line. On the southern corner of this bluff there is a lone Kauri tree, along with a few tall tree ferns, which has survived past fires and the conversion of bush into pasture due to its inaccessible location. In the 1950s it looked a very ugly tree approximately 60 cm through, but was less than 15 m tall, and was on the boundary of Surrey Hills, and Irving's property.

In 1970, with the purchase of a small section of manuka-covered land beside the woolshed, a second Kauri tree was added to the property. This tree was much younger having a diameter of 15 cm and was probably seeded from the mature Kauri at the westerly boundary of Surrey Hills. Dad provided a reserve around this tree and there it was, twice as tall as the Manuka, in all its beauty. The photo taken in 2017, some 47 years later, shows how fast the tree on the ridge has outgrown its parent, given the best of soils to grow in. The Manuka has since been cut but it remains close to a Rewarewa tree (*Knightia excelsa*). There was another small Kauri tree in the roadside scrub just 100 m down road, which I also believe seeded from the same tree at the back of the farm. Kauri seed can be blown large distances on the strong westerly winds around the area. This roadside Kauri is lucky to still be standing today, as in 1957/58 during roadside upgrading, the tree was marked for felling. Olga Harding, a local farmer, protested by tying herself to the tree. The council backtracked and the tree was saved. It is still there today alongside a small bend in the road. There are other trees on the neighbour's farm that had previously belonged to Leighton Broughton. This property had extensive patches of Kanuka, and numbers of young Kauri had regenerated in this scrub. Towards the south of Surrey Hills, near the limestone caves are further Kauri trees on Graham Sattrup's property.

Forest service

Dad taught me a great deal about exotic trees. He explained the trees he planted were mainly for shelterbelts for the stock. Many of the shelterbelts were a combination of gum and macrocarpa trees. Later he planted a few blocks of radiata pine for timber. At Ruawaro Primary School there was a small area where numerous native trees were planted. When I attended Primary School I used a wooden ruler that was inlaid with a number of native timbers, and that helped me to remember what the timber from each tree looked like. By the time I went to high school I knew the name of most major trees and native



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Above, a Kauri head ready for logging. Left, the living quarters for those tasked with harvesting the Kauri. Below, sparse Kauri remain in the Coromandel and Kaimai Ranges.

Above, left, a huge Kauri stump, witness to the logging that took place in the nineteenth and early twentieth centuries and right, the remains of a Kauri timber damn with a derelict site (below); the damns were used to flush the logs downstream to where they could be recovered more easily.

timbers. My liking for trees and timber led me into applying for and gaining a cadet-ship in the NZ Forest Service.

On completion of my training, I was employed at the Forest Research Institute undertaking ecological surveys. These surveys were to identify what trees and vegetation made up our national indigenous forests. Such work took me into the Kauri forests of the Coromandel and Kaimai Ranges, and this is where I first saw the old Kauri logging sites.

On the ridge tops in the Kaimai Range there are extensive areas that were once covered with huge Kauri trees. Today only one or two trees remain as a reminder of this once great forest. There are large stumps scattered amongst the tall, grass-like Gahnia covering the upper slopes and hindering access.

On one interesting site there were the remains of a Kauri timber dam. These dams were used for flushing the logs down the creek and into a stream at the base of the range where they could be recovered. We also came across the remains of an old Kauri slab hut that would have been the accommodation for those tasked with the harvesting of the Kauri. From the site of the Kauri dam the stream had been scoured clean of all but huge boulders and the banks had



no vegetation growing on them. We also took field trips into other parts of the Coromandel Range where there had been trees bled for gum sometime in the past. This was a practice that was finally outlawed, as extensive bleeding would eventually lead to the death of the tree.

Gum digging

During 1968 I was stationed at Riverhead Forest where clear felling operations were taking place on the oldest stands. During this time I was responsible



for the silviculture and planting operation on the forest. This required me to inspect the site prior to planting and work out the area to replant. Walking over the cutover areas, I found numerous holes dug by the early gum diggers for Kauri gum. Along with these holes you could find parts of clay pipes that had been discarded many years before. The best of the pipes I found were taken back to display in the Forest office.

Kauri at Surrey Hills

One school holiday I was helping Dad re-fence the roadside paddock, as many of the posts and battens needed replacing (these old battens then became firewood for the house). Many were Totara but some were Kauri and I always wondered 'Where did they come from?' When I read, many years later, Dad's old farm diaries that he had kept, I got an insight into the swamp Kauri of Surrey Hills. Most diary entries are only a few lines on the weather and the work he carried out on the day, but some gave me an insight to the Kauri logs on Surrey Hills Farm.

Both in the summer of 1936 and 1938 there are references to a number of day's work, sometimes with help from a neighbour, digging in the swamp around the Kauri logs, pulling them out, cutting to length, and splitting them for posts and battens. (Refer to appendix for day-by-day tasks.)

I started to wonder just how large these Kauri logs were. I have made a calculated guess of the size of these logs by converting back from post and batten lengths. I estimate the 'post length' log being greater than 1.8 m (6 ft) in length, which is the length of a post. To obtain 16 posts from this one log, the diameter of it would have to be around 1 m (3–3½ ft). A second log was cut into two lengths, for battens and I estimate this one to be in the order of 2.4 m long (8 ft). For the estimated diameter, the log would have to be approximately 60 cm (2 ft) at the small end and close to 1 m (3 ft) at the larger end. (References in Dad's 1936 diary to Swamp Kauri.)

To extract such logs by hand was backbreaking work, and these logs would have been completely waterlogged and weigh many tons. Dad had no machinery (nor had the neighbours) to extract the cut lengths of log. It was all handwork—digging in the swamp with a shovel to uncover the log, cross-cutting with a 1.5 m (5 ft), two-man saw, digging in a dead man for an anchor, and then using a stump puller to haul out the log. No wonder he comments, 'back breaking work' and 'trying to get Kauri out [of] No. 2 [swamp] but gave up the job' in diary entries of this time.

Around the greater North Waikato area, there are many lakes and around them very large areas of swamps. In the 1950s and 1960s many of these swamps were drained to make way for farmland. During this conversion many old forest logs were dug up. Some logs were utilised, but many were just burnt once the logs were dry. It seems a pity that much of this resource was wasted.

Not so in the far north where huge logs are being extracted from the

swamps and utilised at Ancient Kauri Kingdom in Awanui. The swamps in the far north were dug for Kauri gum in the early 1900s and are now being dug again to extract the Kauri logs (see photos p. 41). These massive logs are ancient, having fallen into the swamps some 35,000 years ago, and were 1,800 years old when they fell. That means the tree was a seedling 36,800 years ago.

In 1982 Dad, having retired, took to carving. He was given a piece of Monoao (*Dacrydium kirkii*) that had been dug up from one of the Waikato swamps, which he cut into table coasters. Research indicated that it would have been between 3,000 to 6,000 years old.

Awanui's Ancient Kauri Kingdom

My wife, Ann, and I have travelled to North Auckland on holiday and have spent time wandering around many of the native forests and museums in the region. These give interesting insights into NZ's early Kauri history. Standing close to our largest Kauri 'Tane Mahuta' you are in awe of its sheer size. Growing to a height of 17.68 m and a girth of 13.77 m, it is estimated to be between 1,250 to 2,500 years old.

One museum I have visited a number of times since it opened in 1992 is the Ancient Kauri Kingdom at Awanui. Here on display are huge logs that have been extracted from local swamps. Some have been carbon dated as being 35,000 years old, with the trees being 1,800 years when they fell.

The timber from these swamp Kauri logs is cut into long lengths. These planks are full of water and need to be slowly dried out in special kilns before recutting to size and this process ensures that the planks will retain their shape when recut to a final product. This timber resource is being milled into very attractive furniture.

The following article, published in *The New Zealand Herald* 17 January 1995, documents the recovery of one of these monster Swamp Kauri logs. (© and reproduced here with the kind permission of *The New Zealand Herald*.)

A 35,000-year-old monster has been dragged from the earth in the far north. The monster, the biggest swamp kauri recovered in recent years, was showing just a metre above the ground when it was discovered near Awanui. Mr Dave Stewart of Awanui, who recovered the log, said a 9 m deep hole was dug to get the 2,000-tonne log out. The huge log was cut in two so it could be pulled clear. With three bulldozers and an excavator, the operation took four days. The larger of the two sections is 20 m long with a diameter of 3.6 m at its widest part. The other log measures 14 m.

Carbon dating showed it to be 35,000 years old, said Mr Stewart "It would have been about 1800 years old when it fell". Mr Stewart believes that two and possibly three forests grew on top of each other in the area because other logs have been dated at up to 50,000 years old. Mr



Caption reads: Mr Stewart stands on top of 'the monster' with Mr Ivan Alvres, a chainsaw operator at ground level. Three bulldozers and an excavator took four days to drag the log clear.

Stewart manages Ancient Kauri Kingdom at the former Awanui Dairy Factory. It provides an outlet for more than a dozen craft-people. Kauri from nearby swamps is transformed into furniture, bowls, vases and outdoor attractions. While large orders are from tourists travelling to Cape Reinga, special orders are exported to places like Korea, Taiwan and Australia.

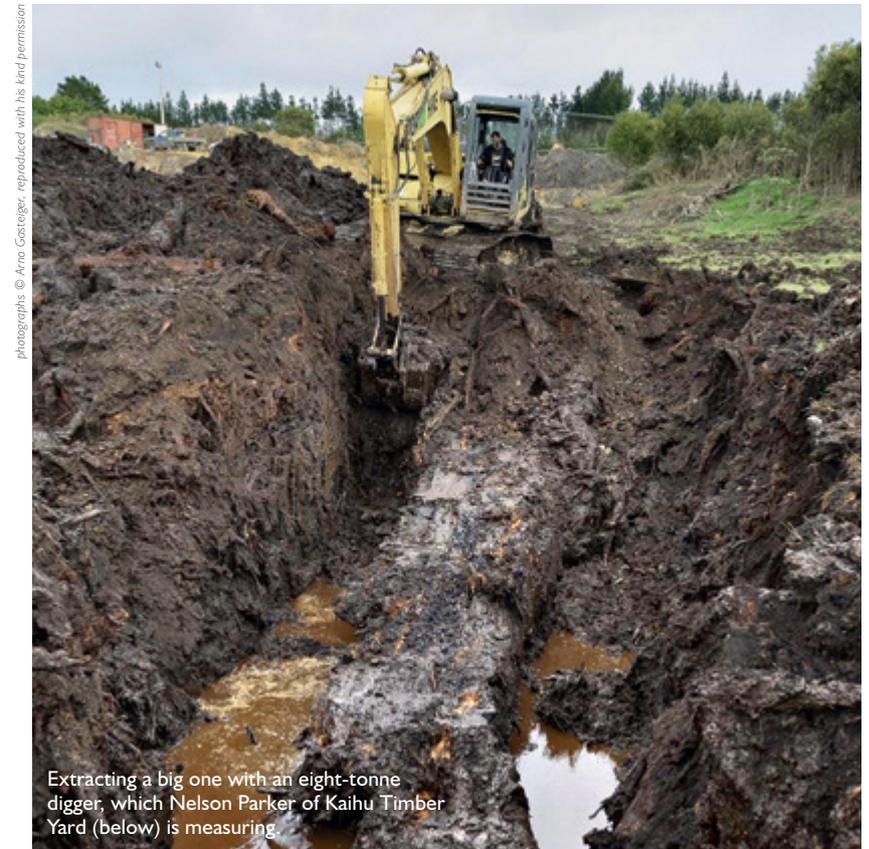
In 1991 I was appointed manager of the Juken Nissho Limited forest and mill operations in Masterton. Mr Nakamoto would visit JNL operations in Gisborne, Masterton and Kaitaia. During the Kaitaia visit he always visited the Ancient Kauri Kingdom, where he purchased many of the craft items for himself and had them freighted back to Japan. One such purchase was a huge stump hollowed out into a spa pool. The stump was about two and a half metres diameter and was crafted with seating for four people.

I was invited to Japan, along with two other forest managers, for a tour of the factories and forests there. In Hiroshima we were accommodated in a Spa Resort that Mr Nakamoto had constructed near one of his forests. The Spa had a large range of pools that we were given the opportunity to soak in—each pool had jets of water to massage the body. One of the pools happened to be the Kauri stump. What an experience for foresters to soak in this very ancient tree stump.

Carbon dating

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Ancient Kauri logs are being used to provide very important data on the climate during the period they were growing. Radiocarbon, or C14—radioactive carbon Isotope—builds up in a plant as they absorb carbon dioxide through photo-



Extracting a big one with an eight-tonne digger, which Nelson Parker of Kaihu Timber Yard (below) is measuring.



synthesis. From the moment the plant dies the radiocarbon begins to decay at a constant rate. If you had a pile of C14 atoms in your hand in 5,730 years, half of them would be gone, and another 5,730 years later there would only be a quarter left, and so on. Cross sections of logs are cut and each growth ring analysed for the amount of C14 atoms, which gives an insight into the climate of the time. Our Kauri trees provide data to scientists, along with other tree records, to accurately date specific periods of time during the last 50,000 years.

APPENDIX

Dad's Diaries (Maxwell C. L. Banks)

- 1936 23 January Jack & I finished fence* No. 1 & No. 2 swamp. Dug out Kauri in swamp.
 20 February Cleaned out drain & bit started sawing Kauri in Swamp by ford.
 21 February Sawing Kauri.
 22 February Got through Kauri at last thank God. Pulled it out with strainer and split a bit.
 24 February Split up 170 odd battens off kauri in swamp
 27 February Split about 40 battens Totara on back paddock. Dug off peat from Kauri in No. 2.
 2 March Went down to Hancocks to borrow his stump puller. Put in a post for anchor for log kauri.
 3 March Getting Kauri out of swamp. Not very successful.
 4 March Sawing Kauri in swamp No. 2.
 5 March Trying to get Kauri out No. 2 but gave up the job. Went on building sledge.
 11 March Bob came up and we sawed and split some Kauri No. 1 swamp half day.
 12 March Bob & I sawing & got out a bit of Kauri in No. 2 swamp.
 13 March Bob & I sawing & pulled the big piece of Kauri in No. 1.
 14 March Splitting battens.
 15 March Splitting battens & rails No. 1 & No. 2.

* This fence line ran through the length of the swamp and during its construction I believe the logs would have been noticed at that time, as in 1938 further entries describe the size of the logs in fencing post and batten lengths.

- 1938 12 January Dug around Kauri in swamp No. 6 which I'm sawing for battens.
 17 January Bob (Irving) came over and we put 5 cuts through two Kauris in swamp in No. 6 for battens and one length of posts.
 19 January Slit 215 battens and 16 posts out of three cuts in two Kauris in swamp No. 6.
 20 January Split about 80 more battens from 2nd Kauri in swamp.

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