



Founding trustee Ian Barton retires

Newsletter No. 51 ISSN No. 1176-1245

Former Chairman and long term member of Tāne's Tree Trust's Board of Trustees Ian Barton has elected to retire from his Trustee role. Ian has been with us from the beginning and that is over twenty years. Ian was on the steering committee that managed the initiating conference **Native Trees for the future** held in 1999. TTT was formed a year later and Ian was voted Chairman/EO/Secretary at that first meeting. His handling of the fledgling organisation became for him a dedicated mission. The awarding of our first Sustainable Farming Fund grant was a tribute to his tenacity and drive as he both wrote the application and then had to negotiate the complex bureaucracy surrounding implementation.



Photo supplied by Ian Brennan

But where did Ian come from and what was it that suited him so well to developing the ethos and the mission of the Trust. Ian is a forester of the old school, starting with the NZ Forest Service in Kaikohe (1956-62) where he developed what would be his lifelong passion for kauri. He was then appointed in 1962 to the new position of chief forester with Auckland City, (later ARA) managing the forests of the enormous Hunua ranges which then was set to become the major water catchment for the city. The 25,000ha of the ranges gave Ian much scope to further his interest in kauri, but also to develop skills in forest restoration, hydrology, developing a native plant nursery and in harvesting. In 1984 Ian left the ARA to become a forestry consultant, staying on in Hunua.

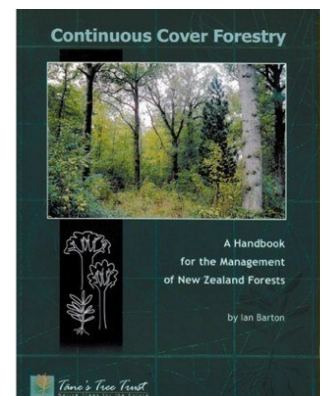
Ian's contribution to the wider community are many and varied. He is a JP, was district councillor for Frankton for two terms and one of his big passions, again as founding trustee, has been the restoration the Queen's Redoubt at Pokeno. Ian gained a B.Sc from Auckland University and an M.Phil from Waikato University in which his thesis was of course on *Kauri, management and physiology*.

Ian is an extremely well published author, with Worldcat citing 40 works in 51 publications. Works on the history and geography of the Hunuas and surrounds dominate his earlier works while works on *Paulownia* and then of course kauri become more important. Ian's strong advocacy for kauri, both as an ecological entity and as a possible harvestable species, arose from his intimate knowledge of its ecology and also his well-researched observations on growth rates. He demonstrated that most observations of growth rates of the species were based on stands on ridges, skeletal soils and other marginal habitats, and that the better growing stands on lowland deep soils had long since been eliminated to farming.

Ian contributed to many of the publications within the TTT arsenal, but his most important work, and what will be his legacy, is **Continuous Cover Forestry**. The book represents the first time that this concept, well known in Europe, had been documented to the New Zealand forestry sector. Early disastrous attempts at a surrogate of this practice, selection logging, in old growth at Pureora had put any such attempt into total disrepute. However the well-reasoned and scientifically backed account from Ian has changed the landscape to the point where the practice is now about to be mainstream in both exotic and native forestry. In particular the continuous cover harvesting of totara in the north, managed by TTT trustee Paul Quinlan, is proving its suitability in New Zealand conditions. To quote, the **Tree Grower** review of Ian's book says it all - ***'Sustainability is at the heart of CCF and in a timber-producing forest this means that the annual or periodic cut does not exceed the annual or periodic increment.'***

So in thanking Ian for his 20 years of outstanding leadership of TTT and its goal of planting and managing native trees for all their benefits, it is appropriate to quote again from that review of his book ***"Ian is a man of vision, with a disciplined mind and determination to carry projects through"***. We in TTT and all its beneficiaries have surely gained from both his vision and his tireless determination.

- **Warwick Silvester**



Check out the bulletin on green fire breaks recently posted on our website https://www.tanestrees.org.nz/site/assets/files/1321/green_fire_breaks_2020.pdf.

Planting strips of low-flammable native species at strategic locations can help mitigate against the increased risk of wildfires.

DISCLAIMER: In producing this newsletter reasonable care has been taken to ensure that all statements represent the best information available. However, the contents of this publication are not intended to be a substitute for specific specialist advice on any matter and should not be relied on for that purpose. Tāne's Tree Trust shall not be liable on any ground for any loss, damage, or liability incurred as a direct or indirect result of any reliance by any person upon information contained or opinions expressed in this work.

DEATH OF NATIVE TREES DUE TO DROUGHT

What can you do to help?

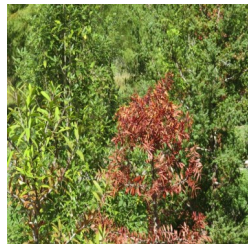
The summer drought of 2019/2020 has caused problems in many parts of New Zealand but has been particularly gruelling in much of Northland and Auckland where records have been broken. The drought has taken a toll on bush reserves. Most notable is the very obvious dieback in the crowns of taraire, often in mature, well-established trees. However, the crown of large trees will often recover over a few years once soil moisture levels have recovered. More concerning is the death of younger trees of several native species.



This is nothing new. New Zealand Forest Service records describe similar crown dieback in Northland in the early 1970s. There was significant tree mortality even in pine plantations and particularly in some of the coastal plantings north of Pakiri. At that time taraire was also identified as one of the species most impacted. But the worst drought in Northland in 60 years occurred when record low rainfall levels were recorded between Nov 2009 and April 2010.

In this recent drought, several species are showing signs of severe stress and some have died. Manuka planted 7-8 years ago has died in the extensive plantings alongside the Northern Motorway north of Albany. It is likely soil was removed during road construction and root development could have been restricted, making the plants more susceptible. In other plantings, kauri and even totara (a hardy species) have died. Widespread tree deaths were also reported this time last year in various parts of New Zealand, particularly in the Nelson-Marlborough region, after dry conditions followed a wet winter.

Dieback in taraire, north Auckland. the extensive plantings alongside the Northern Motorway north of Albany. It is likely soil was removed during road construction and root development could have been restricted, making the plants more susceptible. In other plantings, kauri and even totara (a hardy species) have died. Widespread tree deaths were also reported this time last year in various



PHOTOS: LEFT - Dead or dying manuka planted 7 to 8 years ago. CENTRE - 5-year-old kauri planted in a riparian area, where the stream has run dry. RIGHT – An 18-year-old kauri tree on Waiheke Island, about 9 metres tall, is a victim of the drought.

Why is this happening?

Greenhouse gas emissions have significantly altered the composition of the atmosphere and subsequently changed the global climate. Deforestation has also had an impact as fewer trees mean less absorption of carbon dioxide. Also, forests influence the local climate, providing shade and the cooling effect of evapotranspiration, making the surrounding environment more mesic (ie, higher levels of moisture).

Because of climate change and deforestation, droughts have become more frequent and severe in many parts of the world. There is growing evidence from many regions that the increasing frequency and intensity of drought conditions and heat stress are causing forest dieback, altering the composition and structure of forests and the distribution of species. Of most concern is increased tree mortality due to climate-induced physiological stress and associated processes such as pest and disease incursions, due to climatic shifts and increased vulnerability in repeatedly stressed trees, and increased risk of wildfires.

In New Zealand, [future climate projections](#) indicate that most regions will spend more time in drought, which will negatively impact natural ecosystems and primary production. Time spent in drought could double by the middle of the century, depending on the climate model and scenario considered. Therefore, most of us can expect to see tree dieback like this happening more often in most North Island regions (particularly northern and eastern regions) and eastern regions of the South Island (particularly Canterbury and eastern Southland). The expansion of our forest resources has been identified as a major means of meeting our international climate change commitments, so loss of trees due to drought is a major concern.

What can we do about it?

We need to identify methods to improve the survival of native tree plantings and naturally regenerating forest. Collection of data on tree deaths is the first step – see the text box below on how you can help.

Measures that will increase the survival of native plantings in drought-prone areas:

- Make sure exposure to wind and sun is accounted for when selecting your planting site.
- Understanding the limitations of soil type and match species selection to suit.
- Include hardy species in your planting mix - see what is growing well locally and talk to your local native nursery expert, council staff, or whoever is supplying your planting stock.
- However, if there are drought-susceptible species like taraire that you would like to plant (because, eg, they are a great source of food for kereru) include them in more sheltered areas with higher soil moisture.

Continued next page ...

- Consider the use of hardy, fast-growing, native shrub species as a nurse crop, or possibly exotic species, which may already be present on the site and could be left to provide shelter. Information on nurse crops is provided in various [Tane's Tree Trust publications](#), including the bulletin on 'Native Trees: Planting and early management for wood production' (2007) by David Bergin and Luis Gea (see page 32); and the Tane's Tree Trust handbook for Planting and Managing Native Trees (see Section 2.1, page 2).
- Preferably order plants at least 2 years in advance and request ecosourced plants – this will allow time for seed collection in the local area and, therefore, ensure that your plants are better adapted to environmental conditions at the planting site. Ask questions about the location the seed will be collected from. If seeds are scarce locally, it is often sourced from elsewhere; eg, it is not unheard of for rimu planted in the Northland to be derived from seed collected in the central North Island!

We can all work to diminish our own carbon footprint, and aid New Zealand's transition to a zero emissions economy by continuing to plant trees.

Please email information on tree deaths in your area to office@tanestrees.org.nz – with the following info, where possible:

- The native species that are dead or dying, with numbers or estimated mortality (percentage) for each species.
- Location.
- Other species in the same area that are surviving OK.
- Site conditions - aspect (eg, north-facing slope), soil type (if known), and general description of area, eg, ridgetop, or a riparian area by a dried-out creek.
- Actual or estimated age of trees.
- Please indicate if you know whether the trees were planted, or naturally regenerated.
- If planted, do you know if they were ecosourced?
- Any other relevant information, eg, trees were growing well prior to the recent drought, or they appeared to have struggled from the time they were planted.
- If you have any tips for successful establishment of native trees in drought-prone areas, please share them!

- Ecosourcing maximises survival through adaptive advantage, ie, ensuring the best fit for the local environment. This is particularly important in an era of climate change.
- Ecosourcing also involves collecting seed across a large range of individuals within the source population. This results in a broader and more representative genetic base, which increases adaptive fitness. The more diversified a population is, the better the chance for survival in a changing environment.
- There is some argument over whether we need to intervene and manipulate species distribution in order to take the effects of climate change into account. Regardless, applying ecosourcing principles will increase adaptive advantage.
- Check out the Tane's Tree Trust [guidelines on ecosourcing](#).
- Make sure you are purchasing good quality plants – provide written specifications when you order plants, ie, appropriately ecosourced, size of stock, condition of roots (well developed and free of root distortion), height of the plant, stockiness (root collar diameter), general health and form, and hardening-off.
- Information on plant quality and planting techniques is found in the bulletin mentioned above by David Bergin and Luis Gea, which can be accessed via the link provided above.
- Large well-conditioned plants (at least 50 cm tall with well-developed root systems), which are thoroughly hardened-off, are generally needed for harsher sites.
- Mulching and watering of new plantings during dry spells, where possible, will improve survival.
- Absorbent gels and wetting agents have limited efficacy in dry conditions.
- Minimise the impact of other stressors, ie, keep out grazing animals with fencing, and eliminate pests that interfere with natural regeneration by eating seed, grazing on foliage, or killing native birds.

REFERENCES

- Bergin, D.O., & Gea, L. 2007: Native trees – planting and early management for wood production. New Zealand Indigenous Tree Bulletin No. 3. Revised edition. New Zealand Forest Research Institute. 44 p. <https://www.tanestrees.org.nz/resource-centre/publications/> (Retrieved 2 May 2020).
- NIWA 2016: Risk of drought and extreme winds under climate change. <https://niwa.co.nz/climate/research-projects/risk-of-drought-and-extreme-winds-under-climate-change> (Retrieved 2 May 2020).
- Tāne's Tree Trust 2020: Tāne's Tree Trust Guidelines to Species Selection, Ecosourcing and Seed Collection. <https://www.tanestrees.org.nz/about-us/philosophy-and-strategy/t-nes-tree-trust-guidelines-to-species-selection-ecosourcing-and-seed-collection/> (Retrieved 7 May 2020).

- Jacqui Aimers and Peter Berg

Introducing our new trustee : Ian Brown

Back in 1980 I bought an abandoned farm property in a quiet valley in the Far North. It was cheap, the previous owner having reportedly left the country at short notice to escape unwelcome attention into his horticultural ventures. It gave me an opportunity for a distraction from my day job in Hamilton, and some family holidays in nearby Doubtless Bay. I decided to convert it to a more legitimate land use, and plant trees. My application for a Forestry Encouragement Grant was promptly rejected, the ancient volcanic soil being considered unsuitable for pines (it later grew brilliant pines in our shelterbelts), although my obvious lack of credentials may have been a factor. After licking my wounds I decided to try something different.

There was growing interest at that time in alternative species, and my brother and I planted several of those in a trial block. They included Australian blackwood, a species notable for decorative timber, but unruly branching when open grown. In the summer after planting, the blackwoods were looking interesting, with fast height growth but disorderly branches. Without a clear objective we decided to remove the rogue branches with secateurs. However at half time we were distracted by fishing, and never finished the job.

When we returned in the following summer, the trees that we had pruned the previous year had excellent form in contrast with those we had left, and with no loss of growth, so we repeated the procedure on our annual visits. This was an amateurs version of a controlled trial, in which the number of controls was determined not by a statistical protocol, but by the quality of the fishing. It also formed the prototype of a method, which I developed over time, of early interventional form pruning for blackwood that is now commonly used, and which can be applied to other species, including totara.

By now I had developed a taste for experimental silviculture, and in 1992 I bought a 40 hectare farm on Mt Pirongia in the Waikato. My aim was to plant several species on a commercial scale, try a few tricks, some of which worked and some of which did not, and run some trials. Planting was a family activity, and my children, a useful source of slave labour, some years later had some research topics to work on when studying science at Waikato University.

I had previously linked up with Ian Nicholas at FRI, and over the years we exchanged ideas, ran some trials, and we set up and ran the blackwood growers group AMIGO, the first of the alternative species groups in farm forestry. In 2002, with support from the Sustainable Farming Fund, we co-authored the Blackwood Growers Manual, published as a Forest Research Bulletin.

In 1980 I planted a block of redwoods in Northland, and developed a keen interest in the species. I was influenced by an American friend and mentor Bill Libby, a former Professor of Forestry at the University of California, and we set up the Sequoia Group, based on the

blackwood model. We linked this to a national trial, covering 45 sites throughout the country, using clonal material that Bill had brought in from California. It was self funded. Farm forester volunteers planted on their own property, paid for all costs, and later returned excellent data.



(the King Country and the Western Waikato performed best),

My interest in native forests goes back many years. I have been a member of Tanes Tree Trust since its foundation. I am a longstanding member, although regrettably inactive, of Forest and Bird, and paid for a few metres of the first segment of the great fence at Maungatatauri.

My hands-on experience with natives includes the development of a wetland on our home property in Hamilton. Over the last 20 years I have planted up a small native forest on our coastal property on Waiheke Island, and I described that experience in a two part article in Indigena.

As an amateur tree grower I was surprised but very pleased to be invited to join a stellar cast of trustees, and feel seriously underqualified for the job. However I guess there is a role for the amateur among the experts. We amateurs can sometimes bring a perspective from a different work and life experience. A little ignorance can go a long way - it is easy to think outside the box when you have no idea what is going on inside it. Of course we amateurs make mistakes, but this puts us on a fast learning curve, and if we leave behind us a trail of abandoned ideas, we occasionally stumble on to one or two that might be useful.

Over the years I have had a lot of fun playing about with exotic species. However my emotional attachments are firmly linked to our native species. During the years that I have lived overseas I have had an experience common to New Zealanders abroad, and that is an unexpected encounter with a New Zealand shrub or tree in a foreign park or garden. The initial shock of recognition is soon followed by a lingering sense of nostalgia, and a realisation that our island paradise is where we belong, and that it is our native forests, and the trees in our urban environment, that contribute to our distinctive identity. If we can strengthen an attachment to our natural world by protecting and establishing our native forests, that should help us navigate a path in the challenging post-Covid world.

DONATIONS: A note from the treasurer

All members should be aware that all donations, but not subscriptions, are eligible for a 33.33% tax rebate on your income tax. We will be able to send you a certificate of donation for you to submit to IRD with your tax return.

Please remember us in your bequests.

SUBSCRIPTIONS:

Membership renewal notices are enclosed with this newsletter (or being posted out if you receive your newsletter by email). All new and renewed subscriptions entitle you to a range of free publications—go to our website www.tanestrees.org.nz to order your free copies.