

#### **Healthy Soils with Biochar**

Biochar is a fine-grained, highly porous charcoal produced by burning biomass – agricultural waste, wood waste – with little oxygen. Biochar has been likened to a coral reef in the soil. When added to compost, the charcoal is colonised by soil microbes which attract fungi, connect to the roots of plants and carry nutrients from 'the reef' to where they are needed, thus making healthier soil. There are various techniques for making biochar, both on an industrial scale and in the backyard. This is one of them.

Marios Gavalas, a Ngatimoti resident, enjoys composting and recognises the need to grow nutrient-rich food. As he explains:

"Quite early on in the journey I got onto Koanga Institute and Kay Baxter, its founder. Her philosophy is that if there is disease or ill health in your plants you don't just treat the symptom, you need to look for the cause, and ultimately the cause is the health of the soil and the most efficient way to increase the health of the soil is to increase its carbon."

After much reading and Youtubing, Marios built a kiln to make biochar for his compost:

"I wanted to find a simple, easy way I could make charcoal with what's just lying around, what would otherwise be waste...", Marios explains.

Marios makes his biochar in a two vessel retort. He uses a 44 gallon drum, with holes cut around the bottom of it, and a second, smaller vessel inside where the wood can be pyrolyzed or baked. The inner vessel is an old vessel from a pressure tank. He finds this is ideal because of the thickness of the steel:

"...the thicker metal is like a good oven, it has more radiant heat and doesn't burn out so quickly".

As Marios explains further:

"When you burn wood in a fire, the carbon that's stored in the wood takes the oxygen from the atmosphere, reacts with the carbon and gives off heat and carbon dioxide. We want to do the opposite. We want to store the carbon in the wood. All the other chemicals in the



wood are burnt off and evaporate, but the carbon is what we are aiming to keep."

First step is to pack the inner vessel with wood. Marios uses prunings from his hazelnut trees and macrocarpa and Tasmanian blackwood off-cuts. The wood is packed tightly into the inner vessel and turned upside down inside the outer drum. [Photo 1 & 2]

"It's best to ensure all the wood going into the vessel is of similar size so the burning will be uniform," Marios says.

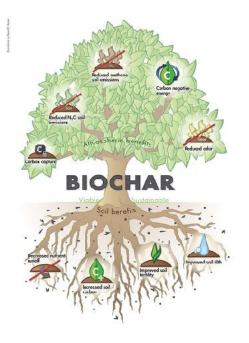
"There is a small chink beneath where the two vessels join so that the gases can escape. It's not hermetically sealed otherwise it would explode."

Next the fire is set around the inner vessel [photo 3] then lit. The process then is to watch the smoke. [photo4]

"The first smoke that comes off is white smoke which is the water vapour. Then you get the grey smokes - the volatiles, the other chemical compounds in what is baking . Finally when the smoke has gone that's when you're burning the carbon and that's when you want to kill the fire... With practise you get to know how much fuel is needed so it will just die out by itself at the right time."

The fire can be extinguished with water allowing the residual heat to continue the baking process.

"You need to do it at least half a dozen times to know what smoke is coming from your fire or what smoke is coming from carbonising the wood, which comes in small whisps that pulse like a dance...It is a matter of just watching what happens over multiple occasions and learning from that - when to stop stoking the fire and when to kill the fire so you don't undercook or overcook it."



It takes 45 minutes to complete the burn, then it's left to cool for two days. This ensures no residual heat is left in the vessel that could combust when exposed to the air.

When cooled, Marios removes the charcoal. He turns the inner

vessel upside down, and wearing a mask, he takes two - three fistfuls of charcoal to crush at a time using a posthole rammer. [Photo7]

"It takes about 20-30 minutes to crush all the charcoal in the vessel - enough for several compost heaps."

On the compost heap, Marios puts three or four handfuls of the charcoal on top of a brown/carbon layer of straw, hay or leaves. He adds some microbially-rich fermented horse or cow manure too.

"Once in the compost, the charcoal is like a life magnet — all the fungi, all the bacteria, all the microbes, everything is going to go toward the carbon, stick and start to multiply."

[Photo 8]

For more information see <u>Biochar.org.nz</u> and International Biochar Initiative

Fiona Nelson



#### **NGATIMOTI SCHOOL NEWS**

#### **2021 TERM DATES**

TERM 1: Tuesday 9 February - Friday 16 April

TERM 2: Mon 3 May – Fri 9 July TERM 3: Mon 26 July – Fri 1 October

TERM 4: Mon 18 October - Monday 20 December





#### NGATIMOTI FESTIVAL DAY SUNDAY 24 OCTOBER ©

Welcome back to school to all our students, teachers and families.

In addition to our permanent teaching staff, we welcome teacher Mara Kennedy who will teach our Year 5 & 6 students whilst Lauren Milnes is on study leave for the first half of 2021, and Rowena Wood who joins us as an extra teacher in the junior school.

School re-opens for learning on Tuesday 9 February. On the evening of Thursday 11 February we will hold our popular 'Infomingle"; a fun evening giving parents, students and teachers a chance to mingle and receive information for the year's learning.

Many thanks to Lou and Ian once again for the fabulous job they have done cleaning and looking after the school grounds. We say farewell to Lou as our cleaner after more than 7 years, and welcome Andrea Blackburn to our team.

**Swimming Pool** Thank you for supporting our school swimming pool once again this season. The pool has been very popular over the school holidays and will continue to be open for community key holders outside school hours during February and March. Key holders; if you no longer need your pool key please return it to the school office for your \$10 refund at any time.

Special thanks to those members of our community who have used the school pool and facilities with great respect over the summer break.

The blessing of the Nga Timoti Pouwhenua last December.

New enrolments welcome. For more information about Ngatimoti School please contact Ali Turner, Principal

Tel: 03 526 8842. office@ngatimoti.school.nz www.ngatimoti.school.nz



# Motueka Catchment Collective News - Testing the Waters

Members of the Motueka Catchment Collective( have begun the year with testing the waters of the upper Motueka River. There have been four workshops held where landowners have been learning to assess the health of their stream or tributary and then the Motueka river.

The first training session was held 12th January at Tim & Jo Leyland's, on the west side of the Kohatu bridge, with Trevor James and Ella Harris from Tasman District Council (TDC) as well as Annette Litherland from NZ Landcare Trust (NZLT).

"There were 20 of us which was a great turnout with folk coming for this first one from the Baton, Glen Rae, upper Motueka, Sherry, Stanley Brook, Woodstock and Pearse catchments as well as from the Kohatu area of the Motueka river... It was amazing to see all the water life in the samples collected and good to recognise the importance of shade for habitat and keeping water temperatures down.", said Jo, convenor A potluck dinner followed.



"...It was a great opportunity to learn more about river and stream health monitoring, think about why we want to do it and the how and what and where we might do it, and just to come together for some shared kai," said Jo

The next monitoring training session was Thursday 14th

On the 14th of January, there was another great opportunity to learn more about freshwater monitoring; this time at Martin and Jill Bonny's place in Glenrae. At least 19 adults and 5 children attended, and it was good to see a diverse group, including many local farmers and small holders.

We first headed up to assess the stream which feeds Martin and Jill's dam, where Ella (TDC) and Annette (NZLT) set up a range of activities designed to introduce different methods of assessing freshwater quality. After splitting into groups, we were assigned a few tests each, which included things like recording water temperature and conductivity, observing sediment levels, and monitoring the presence of nitrates. I think we all found them interesting and worthwhile exercises, especially as they were followed by discussions about how and why each test was done.

On the whole, the stream was found to be in good condition with a decent range of macroinvertebrates, and I think Martin was especially pleased to discover the presence of kōura (even though the one that we caught was found to be missing a claw!)

We then moved back down to the Motueka river, accessing it from the roadside, where we got to swap tasks in order to assess the water quality there. Most of the results were encouraging and it was especially exciting to find a diversity of macroinvertebrates, including a positive number of dobsonfly and stonefly larvae, both thought to be good indicators of a healthy watercourse.

Whilst it was agreed that the water was too warm (an issue that needs to be addressed), we concluded that, on the whole, we were incredibly lucky to be living



alongside such a healthy river, and that it was well worth working hard to keep it that way.

On behalf of those who attended, I would like to thank Martin and Jill for hosting this monitoring event, to Heather Arnold (environmental planner for Nelson Forests Ltd) for attending and to Ella and Annette for sharing their time and expertise.

#### Kate Radloff (Kohatu river area)

The third monitoring training session was held on Wednesday 20th January, and another on Friday 22<sup>nd</sup> January at the confluence of the Dove River where it goes into the Motueka River near Woodstock.

Landowners and sub-catchment groups should be able to access kits to do further monitoring elsewhere at other times by contacting Annette Litherland from NZ Landcare Trust (NZLT) who has a SHMAK test kit for loan to do stream health monitoring. email Annette.litherland@landcare.org.nz



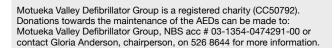
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#### **Location of AEDs in Motueka Valley**

- Woodstock Automotive (Kerry Hall)
   982 Dovedale Road, Woodstock Junction.
- Ngatimoti Community Rooms/Fire Station Motueka Valley Highway next to Ngatimoti School







#### connect on Facebook:

#### **Motueka Valley Community**

A closed group with over 2000 members, who are not necessarily living in the valley, but have the valley at heart.

#### **Motueka Valley Residents**

A private group for people residing in the Motueka Valley area.



#### **Motueka Valley Association**

**Meetings** every 2<sup>nd</sup> Wednesday of the month at 8pm (7.30pm in winter) in the Ngatimoti Community Rooms.

#### Everyone welcome!

For community concerns email the MVA at info@mva.org.nz or contact any of the following **committee members:** 

Peter Laufkotter 526 8554
Fiona Nelson 020 4160 1968
Joel Briffault 021 0784 7245
Fay Knight 022 320 0449

#### local halls/facilities

Ngatimoti Memorial Hall

• Bex Douglas • 021 173 1279 • ngatimoti.hall@gmail.com Ngatimoti Community Rooms • Sarah Bradshaw • 526 8026 Pokororo Hall • Sylvia Arnold • 526 8282 Woodstock Hall • Kerry Hall • 543 3884

#### about your newsletter

- delivered on the 1<sup>st</sup> Thursday of the month to 500 homes in the Motueka Valley from February to December
- send stories, photos & ads by the 20th of the month to the editor, Seiji Kubo: newsletter@mva.org.nz
- · advertising rate: \$2.00 per column cm
- online newsletter + archives: www.mva.org.nz

#### www.mva.org.nz



#### MVA is looking for new committee members

Do you have an interest in the well-being of the Motueka Valley?

Do you have a couple of hours every month to attend meetings at Ngatimoti Community Rooms?

Do you enjoy meeting new people?

If you're interested or have questions, contact one of the committee members or email info@mva.org.nz.



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**Ngatimoti Playgroup** is your local Motueka Valley community playgroup focused on fun and friendships, for kids and parents/caregivers alike. We are a welcoming group providing play and socialisation opportunities for all preschoolers and their whanau in our community, regardless of eventual schooling choice. The sessions are free and held weekly during term time on Fridays between 9:15 and 12:15, but families are welcome to arrive anytime during the session to fit in with naps etc. We are based in the Ngatimoti School hall on Greenhill road. Bring a plate for shared morning tea and join in the fun. We love to see new faces and welcome back old friends, so come along or contact Marian for more info on 03 543 3613 / 021 2400 416 or



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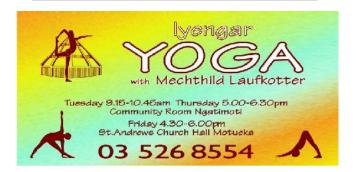
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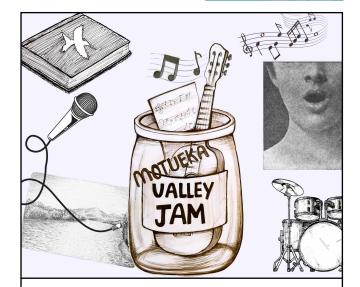


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## **Motueka Valley Open Mic**

Come and check out our awesome valley's local musicians, storytellers, comedians and diverse folk for a night of whatever goes on the mic.

### We will be starting back on the 11th of March

Proudly supported by Ngatimoti Hall Committee and the MVA. Koha Appreciated



