

# Permaculture Cairns Newsletter

EMPOWERING COMMUNITIES WITH SUSTAINABLE SOLUTIONS



Care for the Earth, Care for people, Share the excess

Permaculture Cairns Incorporated    Web Site: [www.permaculturecairns.org.au](http://www.permaculturecairns.org.au)

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## October Meeting & Information Exchange Night

ARC Disability Centre 92 Little Street Manunda

**Tuesday 18th at 6pm for a 6.30pm start**

Members free, but bring a plate of finger food for the cuppa break  
and a dollar for the raffle, this helps pay for the venue.

Non members \$5

### AGENDA

Welcome to new members and visitors

Upcoming workshops and events for this month and beyond

Permaculture Principle Number 10, a practical explanation.

Guest Speaker: Mike Prociw will be our guest speaker. Mike will talk to us about espaliering fruit trees. Mike have over 150 fruit trees on this home block, so I am sure he can give us some good tips and information.

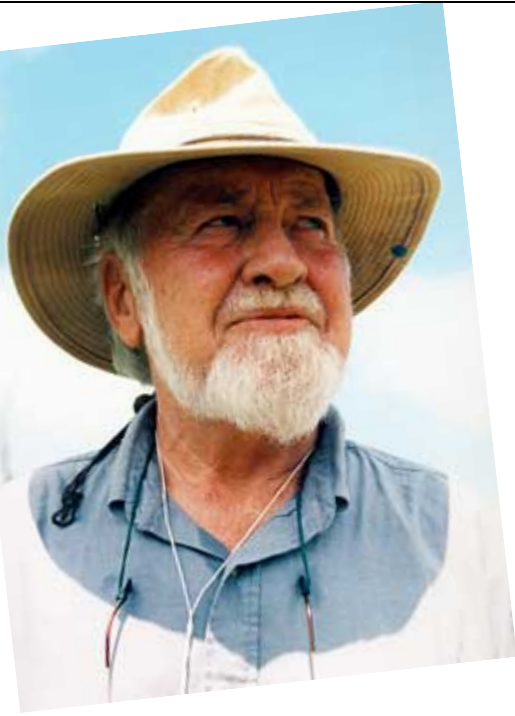
Plant of the Month, and if anyone has something to add please bring it up at this time of the night before we go for a cuppa and nibbles.

## **Permaculture Principle No. 10**    Use and value diversity

“Don’t put all your eggs in one basket”

Diversity reduces vulnerability to a variety of threats and takes advantage of the unique nature of the environment in which it resides.

The remarkable adaptation of the spinebill and hummingbird to hover and sip nectar from long, narrow flowers with their spine-like beak symbolises the specialisation of form and function in nature. The proverb “don’t put all your eggs in one basket” reminds us that diversity offers insurance against the variations of our environment.



## BILL MOLLISON 1928-2016

With deep sorrow, we wish to inform family and friends that **Bruce Charles “Bill” Mollison**, the “**Father of Permaculture**,” has passed away. He departed peacefully from this world in Hobart, Tasmania, just before 11 pm AEST, on the 24th of September, 2016.

After founding Permaculture Institute in 1978, he formalized the training of practitioners, which directly impacted hundreds of thousands of lives, and indirectly many millions more. For his service to humanity, he was honored with numerous awards, including the *Right Livelihood Award* in 1981. But of all the accolades he received, the one he was most proud of was the Vavilov Medal, in large part due to the tenacity, courage, and contributions of the award’s namesake, who Bill considered a personal hero. Bill was also the first foreigner invited and admitted to the Russian Academy of Agricultural Sciences.

Bill will be missed by many who loved him for his strength, courage, intellect, humor, and benevolence. He gifted so much to the world: a vision and framework for a positive future, a special concern for developing countries, and above all, hope.

This is the Bill that the public knew.

For those who were his intimates, words are especially difficult, breaking under the weight of what the heart feels and longs to express.

Our thoughts and prayers are with Bill’s family and close friends, who kindly request privacy and space during this difficult grieving period; at an appropriate time, a public memorial will be announced for those who wish to formally extend their condolences.

A massive tree in the forest of humanity has fallen. But in keeping with Bill’s invincible optimism, these verses from the great mystic, Rumi, are perhaps most appropriate:

*When you see my procession, don’t cry, “Gone, gone!”  
For me it is a time of meeting and reunion.  
As you lower me into the grave, don’t say, “So long.”  
When you see that lowering down, consider a rising.  
What harm is there in the setting of a sun or moon?  
What seems a setting to you is a dawning.  
What seed goes into the earth and does not grow?  
Why are you doubting this human seed?*

**Bill, you will never be forgotten.**

*(The above is an official statement of the Permaculture Research Institute, prepared at the request of Bill’s widow, Lisa Mollison.)*



## Permaculture Cairns Backyard Meeting 17<sup>th</sup> September

We had a great day at Craig and Bernie's place building a wicking bed. Thank you to all the members and new members who came and contributed. We learnt how to use the resources on hand and learnt the principles behind using wicking beds. We all enjoyed a wonderful morning tea... once again when like-minded people come together it is always a joy! Living... Learning... Connecting..



## MANOORA COMMUNITY GARDENS IS OPEN

Costa came along to the opening and taught students how to plant seedlings. The garden needs donations of seedlings and plants.





# THE POWER OF PALLET

All proceeds from  
the event go to  
far north queensland  
hospital  
foundation

## Auction Fundraiser

**When: Saturday 29th October 2016**

**Where: Cairns Cruise Liner Terminal**

**We want you to get involved!**

FREE Registration and receive 2 tickets to come along to the event! Upcycle wooden pallets into useful item that can be auctioned on the night with ALL proceeds going to the Far North Queensland Hospital Foundation.



Guest Judge for the night **Jamie Durie** and great prizes for community groups, schools, Individuals and businesses that get involved!

### **For More information**

Register at [www.thepowerofpallets.org.au](http://www.thepowerofpallets.org.au)

[Www.facebook.com/thepowerofpallets](https://www.facebook.com/thepowerofpallets)

### **Interested in becoming a SPONSOR?**

Contact Nicole at The Far North Queensland Hospital Foundation (07) 4226 8993

## *Growing Food in The Wet Tropics in October*

Sorry been away for most of this month and part of last month. Since returning home I have been composting all the garden waste and removing weeds, which are all good for adding to the compost heap. This time of the year is a good for cleaning up and making a heap that will compost slowly over the coming months, I don't plan to turn this heap but it will be ready to use when I start up the garden after the wet.

This doesn't mean we can't grow anything now, I have just planted lettuce and wasabi lettuce, seeded rocket, bok choy, tomatoes and kale. The earlier tomatoes, eggplant, beans, broccolini, celery, fennel are still going well, so we have plenty to eat.

It is a bit late for the fresh planting of Kale but it may turn out ok, depending on the weather. I recently dried some kale rubbed with a little olive oil and onion salt and it was delicious, so really keen to try again.

Don't forget the tropical veg, Okinawa Spinach, sambung greens, kang kong, Brazilian spinach, Sweet leaf, Ceylon spinach, all good standbys for the months ahead.

### **WORKSHOP – Sun 23rd OCTOBER 2016**

Learn how to grow your own organic nutrient rich food

The first workshop was full in no time so I have decided to hold another one this month. Carol Laing

The plan is to continue the workshops next year, to ensure you will be successful in growing your own food. Once your soil has been re-mineralised, organic matter and microbes increased, the growing of plants is so much easier. Pests and diseases are almost non-existent because your nutrient rich plants are no longer attractive to insects.

The idea behind this series is to start at the beginning, preparing the soil before planting next year. The first workshop will include the following

**how to grow a green manure crop,  
how to increase organic matter in the soil,  
how to compost and which plants to grow for composting/mulching  
how to increase beneficial microbes  
how to make compost teas and how to use worm products.**

All of these practices will benefit your plants when you plant out next year in the cooler months. We will also cover the growing of tropical vegetables.

The workshops will be held on a permaculture property in the Cairns city area, where many tropical vegetables and fruits are growing.

**COST: the first workshop will be at a discounted fee of \$20  
So if you are at all interested please contact me Carol Laing at –  
[newsletter@permaculturecairns.org.au](mailto:newsletter@permaculturecairns.org.au)**

Perhaps we will create a group of people interested in growing food well and meeting others who are just as dedicated to helping themselves improve their families health. You may learn to relax and enjoy the garden, learn out to include your children in this important activity. You could also make some new friends.

## WHATS'ON AND WHAT'S COMING UP

The James Cook University Community Garden Working Group  
invites you to the

Community Garden Grand Opening Cairns Campus, JCU  
Wednesday 19th October – 12 to 3pm

Guest speakers and garden activities and more

~Light lunch provided~

Jay Jackson, our Community Garden Coordinator will give a talk on 'Practical Permaculture'. Hear about the garden's history from Associate Professor Lisa Law and the Community of Gardener's Student Club.

Help us make some garden beds!

Please RSVP by October 12 to  
[sustainability@jcu.edu.au/cnsTropEco](mailto:sustainability@jcu.edu.au/cnsTropEco)

All visitors must wear enclosed shoes. BYO hat, long sleeve shirt, sunscreen, insect repellent and water.

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### Cairns Seed Savers Meeting

Cairns Seed Savers is an informal group of individuals with a passion for saving seeds and growing fruit, vegetable and other useful plants that have been passed down through generations and are adapted to our local conditions.

WHEN: Sunday 23rd October 2016

WHERE: Dino and Emily's place, 49 Boland St, Westcourt

PHONE: Jo 40553053

WHAT TO BRING: · Organically grown, non-hybrid seeds for our Seed Bank · A plate of food to share for lunch · Your own chair, plate and cutlery · Your spare seedlings, cuttings, plants and produce for the Share Table

AGENDA: 10 – 11:00AM Meet'n'greet, general housekeeping, seed sorting and access to Seed Bank

11:00 – 12 Dino will show us how he has constructed his raised vegie garden beds and tell us about the hot compost system he used to help fill them.

12 - 12:30 Enjoy a shared lunch

12:30 – 1PM "Show and tell" of any great ideas/inventions.

Tour of Dino and Emily's expanding garden - see the progress since our meeting there in February this year.

See you there!



# FNQ Community Exchange – LETS Local Energy Trading System

## OCTOBER Calendar of Events

**KOAH – Saturday 1st 9am – 1pm Monthly Market and Trade at Koah Community Hall.** You are invited to be part of the local Koah Monthly Market, an excellent family friendly venue. This is a traditional cash Market however LETS members are welcome to participate and trade \$5 or 5B per stall, set up from 8am. **EVENT HOST: Tonielle – 0422058995**

**Yungaburra – Saturday 1st Alliance Française from 1pm @ that retro cafe** hosting with fresh croissants & French style lunch menu. Come learn to speak, practice or listen in French. All Francophiles Welcome. **NON LETS Event.**  
**Event Host: Sheila Taite and that retro cafe: 40952340**

**CASSOWARY COAST - Sunday 2nd 9 – 3pm Johnstone River Community Garden Pink Picnic,** supporting Breast Cancer Awareness month. Flying Fish Point Rd, Innisfail. Garden Harvest Lunch This is not a LETS event. **Event Host: Bernie - 0403523244**

**ATHERTON – Saturday 8th 11am – 2pm LETS Monthly Trade 17 Evens Street.** There is covered space for a large number of tables. Tables for hire for 5B. Shared lunch. Book your site **Event Host : Irene 0439914876**

**MALANDA - Sunday 9th 10 – 12 noon.** Malanda Trade in the Park. Eacham Memorial Park, opposite the post office. Bring along morning tea to share, something to trade and display your wares. There is a shelter, so it's an all weather event. Be there or be square. **Event Host: Katrin – 40966755**

**RAVENSHOE - Saturday 15th 12 - 2pm Trade afternoon Youth Shed, Ravenshoe Community Centre, 3 Bolton Street.** Following Community Gardens gathering - come and check it out. Child friendly event. Bring something to trade and some lunch to share. **Event host: Kathy - 40977864**

**CASSOWAY COAST – Sunday 16th 11am – 3pm LETS Trade.** Bring Lunch to share (BBQ available), items to trade, information on services offered and some good conversation as well. Please consider BYO plate & cutlery to save our host excessive dish duties. Car pooling recommended when making the trip from the Tablelands. (\*Weather permitting). **Event Host: Bernie - 0403523244**

**JULATTEN – Saturday 22nd 9am – 2pm Pamper Day – Sounds delicious!** For more details, please contact: **Event Host Lyn Gore - 0427 962 888**

**YUNGABURRA – Saturday 22nd 12 - 2pm that retro café Trade Afternoon.** This event is immediately after the Yungaburra Market. Bring along something to trade and a rug to display your wares. 100% Bartles for drinks from the menu, you will need cash for lunch and drinks from the display fridge. Please be mindful when setting up to keep the path clear at the front of the shop. **Event Host: Melitta - 40952340**

**MALANDA – Saturday 29th 6 – 8pm Malanda Trade & Indian Dinner @ Katrins place, 33 Park avenue,** opposite the caravan park in Malanda. Bring a plate to share and trade goodies. Family friendly venue = bring your kids. **Event Host: Katrin - 40966755**

**CAIRNS CITY – Sunday 30th 12- 2pm - Lafew Teahouse, 33 Sheridan Street.** LETS relies on member initiative and participation to make events happen - At Lafew we provide a prime position opposite Rusty's Market. We offer: kombucha, tea and coffee. Available 50/50 Bartles/\$. We like to focus on edible plants and would love to see our garden area used as a drop off & pick up for edibles. For new members - please drop by and chat to the LETS traders, you can sign up on the day. **Event Host: Lorna – 0475762838**

What to bring to Trade Events where not specified above: food & drinks for yourself or to share, or money and/or Bartles at some venues, friends, Trading Record Sheet and pen, any goods you wish to trade, table/rug to display them upon is often useful, your own chair at some venues, promotional material of any services you are offering if applicable, \$20 to join LETS if you are not yet a member.

## Regenerative Agriculture Convergence – Koah

Sunday 23 October – Wednesday 26<sup>th</sup> October

Brandemarti's Farm, Koah

Friends of the Farmers presents the Regenerative Agriculture Convergence 2016 offers presentations, workshops and experiential hands on sessions on:

Permaculture design, organics, biodynamics, soil revitalisation,

Experiences making: bio-fert, biochar, activated compost

Want more info <https://sustainabilityalliancefnq.wordpress.com/2016-conveyergence/>

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CAIRNS CONVENTION CENTRE, Friday 28, Saturday 29<sup>th</sup>, Sunday 30 OCTOBER, 2016

### Pay Dirt: National Biological Farming Conference and Expo,

To hit pay dirt: to discover something of value; to get to the basic facts of something.

Cairns will be the centre of the soil health world this October when delegates to the National Biological Farming Conference look to strike pay dirt with some of the best farmers and agricultural researchers in the world.

Bowen tomato grower, Jamie Jurgens, opens the conference with his story of generational change and resilience in embracing biological farming. He is closely followed by internationally-renowned North Dakota regenerative farmer, Gabe Brown, explaining how his integrated crop management system that has eliminated pesticides and artificial fertilisers means he now has more time to fish. Dr Brajesh Singh, professor in microbiology from University of Western Sydney, puts Australia's biological farming into an international context with his insights from work advising key agricultural policy makers in the USA and EU.

Around 50 farmers, agronomists and researchers from Australia, the US and New Zealand will educate, enlighten and entertain on topics from composting to climate resilience, drones to dung beetles and biochar to bioherbicides. Farmers and graziers from WA, SA and up the eastern coast are poised to tell their stories of challenge and change across industries as varied as wheat and sheep, beef cattle, dairying, cotton and grains, sugar cane and bananas, viticulture and tree crops. Pre conference tours and post conference workshops will introduce delegates to biological farm practices close up. The conference will close with a vision for agriculture in 2060.

An exciting expo will bring together around 40 exhibitors with the latest biological farming techniques, products and practices to help farmers understand how to make changes on large-scale enterprises.

The conference is convened by not-for-profit soil health group, Wet Tropics Soilcare, recipients of an Australian government grant for sustainable agriculture and strongly supported by Terrain NRM, the natural resource management body for the Wet Tropics, northern NSW-based SoilCare Inc, and other sponsors.

Register at early bird prices until August 7th \$225+GST by booking online at [www.nationalbiologicalfarmingconference.org.au](http://www.nationalbiologicalfarmingconference.org.au) From August 8th, \$350+GST.

For more info, contact Regional Landcare Facilitator, Fiona George, [info@nationalbiologicalfarmingconference.org.au](mailto:info@nationalbiologicalfarmingconference.org.au) or phone 0488 702 203.



**INFORMATION – SERIOUS AND USEFUL STUFF  
A MUST READ!!!!!!**

Editor's Note – the following two articles are from "The Conversation" online newsletter. These two articles reinforce the saying "We are what we eat"

## **Gut feeling: how your microbiota affects your mood, sleep and stress levels**

October 11, 2016 6.03am AEDT

*Our gut does more than help us digest food; the bacteria that call our intestines home have been implicated in everything from our mental health and sleep, to weight gain and cravings for certain foods. This series examines how far the science has come and whether there's anything we can do to improve the health of our gut.*

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The gut microbiota is the community of bugs, including bacteria, that live in our intestine. It has been called the body's "forgotten organ" because of the important role it plays beyond digestion and metabolism.

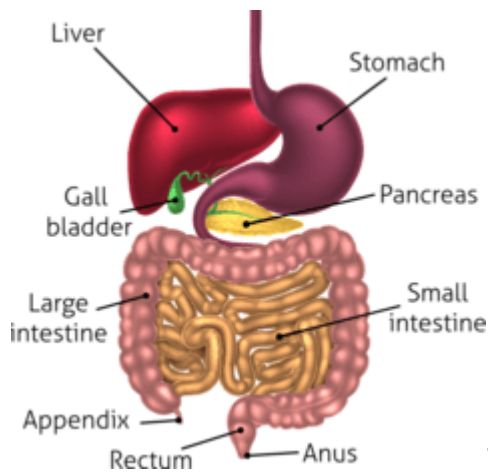
What is the human microbiome?

You might have read about the importance of a healthy gut microbiota for a healthy brain. Links have been made between the microbiota and depression, anxiety and stress. Your gut bacteria may even affect how well you sleep.

But it can be difficult to work out exactly how far the science has come in this emerging field of research. So what evidence is there that your gut microbiota affects your brain?

## **How does your gut talk to your brain?**

When you're healthy, bacteria are kept safely inside your gut. For the most part, the bacteria and your gut live in harmony. (The gut has been known to nurture or even [control the behaviour](#) of the bacteria for your well-being.)



The gastrointestinal tract. [Christos Georghiou/Shutterstock](#)

So how do the bacteria get their signal out?

The best evidence is that the normal channels of communication from your gut are being hijacked by the bacteria.

The gut has a bidirectional relationship with the central nervous system, referred to as the “[gut-brain axis](#)”. This allows the gut to send and receive signals to and from the brain.

A recent [study](#) found that the addition of a “good” strain of the bacteria lactobacillus (which is also found in yoghurt) to the gut of normal mice reduced their anxiety levels. The effect was blocked after cutting the vagus nerve – the main connection between brain and gut. This suggests the gut-brain axis is being used by bacteria to affect the brain.

This link was clarified in a [study](#) where bacterial metabolites (by-products) from fibre digestion were found to increase the levels of the gut hormone and neurotransmitter, serotonin. Serotonin can activate the vagus, suggesting one way your gut bacteria might be linked with your brain.

There are [many other ways](#) gut bacteria might affect your brain, including via bacterial toxins and metabolites, nutrient-scavenging, changing your taste-receptors and stirring up your immune system.

## How can the gut affect your mental health?

Two human studies looked at people with major depression and found that bacteria in their faeces differed from healthy volunteers. But it’s not yet clear why there is a difference, or even what counts as a “[normal](#)” [gut microbiota](#).

In mouse studies, changes to the gut bacteria from antibiotics, probiotics (live bacteria) or specific breeding techniques are associated with anxious and depressive behaviours. These behaviours can be “[transferred](#)” from one mouse to another after a faecal microbiota transplant.



Human studies have found links between mental illness and gut bacteria, but much remains unknown. [Anna Jurkovska/Shutterstock](#)

Even more intriguingly, in a [study](#) this year, gut microbiota samples from people with major depression were used to colonise bacteria-free rats. These rats went on to show behavioural changes related to depression.

Stress is also likely to be important in gut microbiota and mental health. We've known for a long time that stress contributes to the onset of mental illness. We are now discovering bidirectional links between stress and the microbiota.

In rat pups, exposure to a stressor (being separated from their mums) changes their gut microbiota, their stress response, [and their behaviour](#). Probiotics containing "good" strains of bacteria can reduce their stress behaviours.

## How gut microbiota affects your mood

Medical conditions associated with changes in mood, such as irritable bowel syndrome (IBS) and chronic fatigue syndrome (CFS), might also be related to gut microbiota.

IBS is considered a "[gut-brain disorder](#)", since it is often worsened by stress. Half of IBS sufferers also have difficulties with depression or anxiety.

Ongoing [research](#) is investigating whether gut bacteria are one reason for the mood symptoms in IBS, as well as the gastrointestinal pain, diarrhoea and constipation.

Similarly, CFS is a multi-system illness, with many patients experiencing unbalanced gut microbiota. In these patients, alterations in the gut microbiota may contribute to the development of symptoms such as depression, neurocognitive impairments (affecting memory, thought and communication), pain and sleep disturbance.





Many people with irritable bowel syndrome and chronic fatigue syndrome have unbalanced gut microbiota. [Alice Day/Shutterstock](#)

[In a recent study](#), higher levels of lactobacillus were associated with poorer mood in CFS participants. Some improvements in sleep and mood were observed when patients used antibiotic treatment to reduce gut microbial imbalance.

The exact contributions of stress and other factors such as intestinal permeability (which allows nutrients to pass through the gut) to these disorders are not understood. But the downstream effects seem to be involved in IBS, inflammatory bowel conditions, CFS, depression and chronic pain.

## How our gut affects our sleep

Our mental health is closely linked to the quality and timing of our sleep. Now evidence suggests that the gut microbiota can influence sleep quality and sleep-wake cycles (our circadian rhythm).

A study this year examined patients [with CFS](#). The researchers found that higher levels of the “bad” clostridium bacteria were associated with an increased likelihood of sleep problems and fatigue, but this was specific to females only. This suggests that an unbalanced gut may precipitate or perpetuate sleep problems.

There is emerging evidence that circadian rhythms regulate the gut immune response. The effect of immune cells on the biological clock could provide insights into the possible bidirectional relationship between sleep and the gut. For example, data from [animal studies](#) suggests that circadian misalignment can lead to an unbalanced gut microbiota. But this effect can be moderated by diet.

There is growing concern that [disruptions](#) to our circadian timing of sleep leads to a range of health issues, such as obesity, metabolic and inflammatory disease, and mood disorders. This is particularly important for shiftworkers and others who experience changes to their sleep/wake patterns.

## What this means for treatment

In terms of using interventions directed at the gut to treat brain disorders – so called “psychobiotics” – there is a lot of promise but little clear evidence.

Probiotic (live bacteria) treatments in mice have been shown to reduce cortisol, an important stress hormone, and decrease anxious and depressive behaviours.



It's not as simple as opening a tub of yoghurt. [jules/Flickr](#), [CC BY](#)

But there are very few studies in humans. A [recent systematic review](#) of all the human studies showed the majority do not show any effect of probiotics on mood, stress or symptoms of mental illness.

On the plus side, large studies show us that people who eat a balanced diet with all the usual good stuff (fibre, fresh fruit and vegetables) have lower rates of mental illness as [adults](#) and [adolescents](#).

Clearly, diet affects both the gut microbiota and mental health. Research is ongoing to see whether it is a healthy gut microbiota that underlies this relationship.

A healthy gut microbiota is linked to a healthy brain. However there are only a handful of human studies demonstrating real-world relevance of this link to mental health outcomes.

There is still a way to go before we can say exactly how best to harness the microbiota in order to improve brain function and mental health

## **Bad times for good bacteria: how modern life has damaged our internal ecosystems**

October 9, 2015 6.23am AEDT

Human actions damage ecosystems on a global scale. Our influence is so great we've triggered a new geological epoch, called the [Anthropocene](#), simply because of the changes we've brought about. But it's not just the outside environment we've changed, we've also damaged the ecosystems inside us.

Our activities [alter natural processes](#), such as weather patterns, and the way nutrients, such as nitrogen and phosphorus, move within ecosystems. We cause declines in species diversity, trigger extinctions and introduce weeds and pests.

All this comes with [costs](#), caused by the increasing unpredictability of both physical and biological systems. Our infrastructure and agriculture rely on a consistent climate, but that's now becoming increasingly unreliable. And it's not just the outside world that's unpredictable; it may come as a surprise to some that we have internal ecosystems, and that these have also been damaged.

## Shrinking population

Every adult is made up of 100 million, million human cells (that's a one followed by 14 zeroes). But the human body is also home to ten times this number of bacterial cells, which, collectively, are called the [microbiota](<http://www.nature.com/scientificamerican/journal/v306/n6/full/scientificamerican0612-36.html>). Biologists have only been exploring this internal ecosystem for a decade or so, but surprising and important results are already emerging.



Humans damage ecosystems on an epic scale. [Global Water Forum/Flickr](#), [CC BY](#)

Because the laboratory where I work is interested in how humans affect evolutionary processes, it was natural for us to ask how much humans might affect microbial ecosystems. The answer turns out to be [quite a lot](#).

Possibly the most direct and personal effects are on our own microbiota. And these changes come with consequences for health and well-being. Exactly the same processes we see in external ecosystems – loss of diversity, extinction, and introduction of invasive species – are happening to our own microbiota. And damaged ecosystems don't function as well as they should.

Scientists have tried to “go back in time” and ask what the original human microbiota might have looked like. There are three ways of doing this: biologists can look at the microbiota of our nearest relatives, [the great apes](#); we can examine DNA from [fossils](#); or we can look at the microbiota of modern-day humans who still have a [hunter-gatherer lifestyle](#).

All these approaches tell the same story. Modern humans have a lower diversity of microbiota than our ancestors, and there's been a consistent decline in this diversity across ancient and recent human history.



There are a number of reasons for the decline. The widespread use of fire from [350,000 years ago](#) increased the calories we could obtain from food. This probably decreased our need for a big gut, and a smaller gut means less room for microbes.



The human body is home to ten times more bacterial cells than the 100 million, million human cells (that's a one followed by 14 zeroes) that make it up. [Charis Tsevis/Flickr](#), [CC BY-NC-ND](#)

The invention of agriculture between 8,000 and 10,000 years ago changed our diet, and with it, our microbiota. The end result was the extinction of some components of the microbiota in farming populations. Even today, hunter-gatherers and subsistence societies have many [bacterial species in their gut](#) that are never found in the guts of people from westernised societies.

## Modern onslaught

Changes in microbiota have been tracked using bacteria preserved on the [teeth of skeletons](#), and this showed falls in diversity linked to dietary changes, as well as a shift to microbial species associated with disease.

The changes are particularly apparent after the Industrial Revolution, when processed flour and sugar became widely available. And diet continues to have a major influence on our microbiota.

But the greatest disruption probably happened after the 1950s. This time period corresponds to a number of changes that [directly affect the composition](#) of the human microbiota. One involves the opportunity for microbiota to colonise newborns and infants. Normally, babies obtain some microbiota from their mother during childbirth, but caesarean births interrupt this opportunity. Bottle feeding, increased sanitation, and eating processed, sterile foods also limit opportunities to acquire microbiota.

Modern medicine has been very successful at controlling bacterial diseases with antibiotics. Unfortunately, antibiotics cause considerable collateral damage to innocent and beneficial bacteria. After antibiotic therapy, the microbiota may never return to their original abundance, and genetic diversity is reduced in those bacteria that remain.

Collectively, these changes mean that our microbial ecosystems have become degraded, much like natural ecosystems globally. The microbiota are less functional and resilient than they should be. And it turns out they have essential roles in developing our immune systems, and in regulating metabolism. So it shouldn't be surprising that altered microbiota are now being [associated with many diseases](#) of the modern world.



One of the last hunter-gatherer societies in the world, the Yanomami people of South America, have a highly diverse and stable microbiota, and don't suffer from diseases common in the developed world. [christian caron/Flickr](#), CC BY-ND

These diseases include obesity, allergic reactions, chronic inflammatory conditions and autoimmune disorders. More recently, it's also been suggested that [psychological conditions](#), such as depression and anxiety, are linked to the bacteria that live inside us.

In some cases, the parallels with more conventional ecosystems are clear. *Clostridium difficile* is a bacterium that can grow out of control in our gut, like an invasive weed. And, like a weed invading degraded land, it often spreads rapidly after other bacteria have been eliminated from the gut by antibiotics. The most effective cure is similar to bush regeneration; [donating microbiota](#) from healthy volunteers (a "poo transplant") helps restore a healthy ecosystem.

But, for many diseases associated with our microbiota, there are no immediate cures. Like most ecosystems, our gut bacteria are complex and dynamic. The challenge now is to understand this system and how to acquire and maintain a healthy microbiota, so that in the future, a [microbiota check-up](#) might be a routine part of a visit to the doctor.

In such a future, hunter-gatherers such as the [Yanomami](#) of the Amazon may turn out to be the custodians of valuable species that are extinct in the microbiota of the developed world.

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*If anyone has information they think should be included in this newsletter, especially about workshops and events, please send me the information in a way that I can copy and paste into the newsletter.*

*Editor, Carol Laing - [newsletter@permaculturecairns.org.au](mailto:newsletter@permaculturecairns.org.au)*

*Membership form next page.*

*Discount membership for 2016 now \$10*

*Come meet some like-minded people and learn how to live on this planet sustainably.*



Please PRINT – SIGN – SCAN and RETURN by email to  
treasurer@permaculturecairns.org.au.



## Permaculture Cairns

### Membership Form 2016/2017

One year's membership fee - 1 Jan – 31 Dec:

- ☐ Household membership \$30    ☐ Renewing Member    ☐  
☐ Individual membership    \$20    ☐ New Member    ☐

Name(s) of all applicant(s) & DOB if under 18yrs):

.....  
.....  
.....

Postal Address: .....

..... Postcode: .....

Phone(s): .....

Email: .....

Signature: .....

Payment may be made at Meetings, at Cairns Penny or Online Direct Deposit to Permaculture Cairns A/c at Cairns Penny in Grafton Street. BSB704-966 A/c No. 100009440 please include your Surname as reference.

If you have a Permaculture Design Certificate could you please complete the following survey.

YOUR NAME:.....

Who was the Course Presenter:.....

When did you do the Course:.....

Where did you do the Course:.....

Permaculture Cairns Public Meetings - All Welcome Every second month on the Third Tuesday of month Jan to Nov (Second Tuesday Dec). Doors open 6pm, meeting starts at 6.30pm at: ARC Disability Centre, 92 Little Street, Manunda

### Enquiries

President: Jenny McGrath

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