

Michael Wardle and Permaculture

*By Douglas Jones
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The guest speaker at the July ROGI meeting was Michael Wardle, a permaculture educator and consultant, who gave an informative talk on permaculture and its applicability to suburban yards. Michael owns and runs Savour Soil Permaculture which provides land design consultations and Permaculture Design Courses. He is also the adult education coordinator at the Northey Street City Farm in central Brisbane.

Michael has 25 years of experience in permaculture, the last 8 years being as a professional. His website is www.savoursoilpermaculture.com.

He developed his Laidley property using permaculture design principles, a process which took 8 years. In the final full year of his ownership of that property, 2020, it produced over three tonnes of food (vegetables, fruit, nuts, etc.)

In his presentation, Michael provided input and interacted via question and answer with ROGI members who were invited to share their experiences and understandings. This was consistent with his emphasis on being an educator rather than a teacher, pointing out that the etymology of the word “educate” means “to draw out”. The presentation was rich with content and anecdote, and this brief summary will simply present some of the key points.

He began with the fundamental question: **What is permaculture?**

Answers offered by ROGI members included: Permanent agriculture; sustainable culture and sustainability.

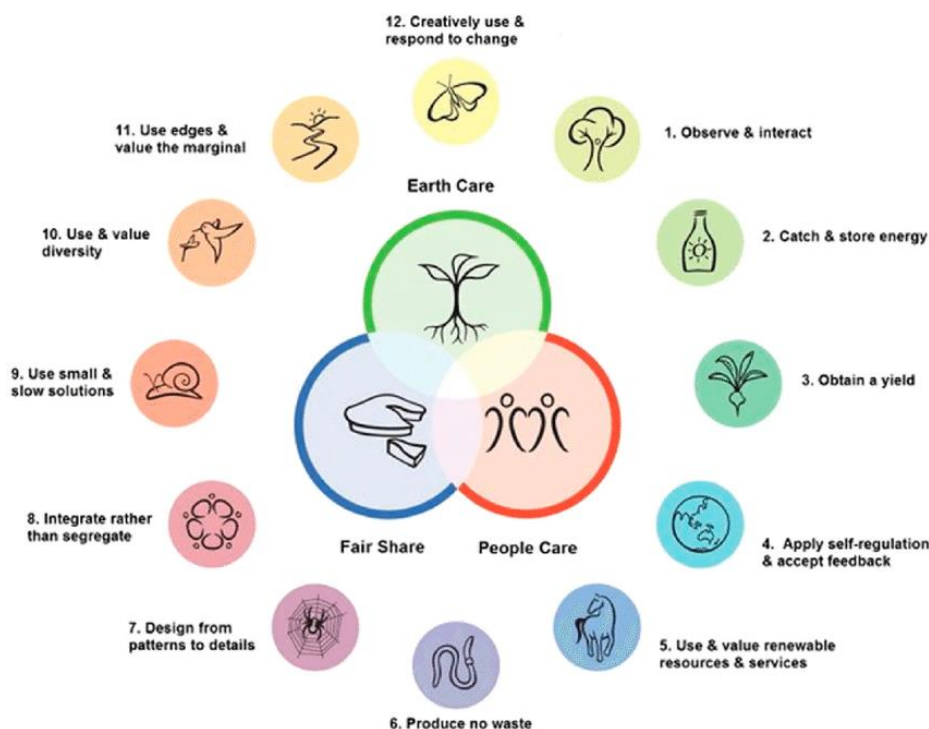
Michael’s working definition of permaculture (borrowed from another permaculture educator) was:

“Permaculture is a design process to meet human need while enhancing ecosystem health.”

He emphasized that **permaculture is a design process**, but it is not simply a design process.

It is **a design process based upon three foundations which provide the ethical framework for using the permaculture design principles (12 altogether). Those foundations are:**

- 1. Earth Care**
- 2. People Care**
- 3. Fair Share (or, more recently, Future Share)**



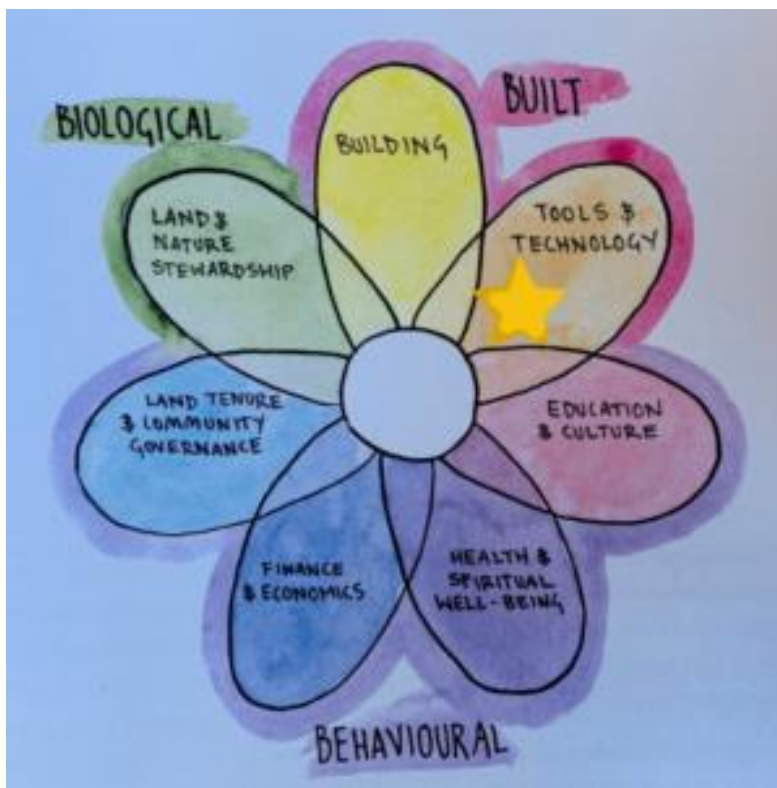
Michael spoke to the above diagram which he had as one of his PowerPoint slides.

He did not go through all twelve design principles which are shown in the diagram above and listed below:

1. Observe and interact
2. Catch and store energy
3. Obtain a yield
4. Apply self-regulation and accept feedback
5. Use and value renewable resources and services
6. Produce no waste
7. Design from patterns to details
8. Integrate rather than segregate
9. Use small and slow solutions
10. Use and value diversity
11. Use edges and value the marginal
12. Creatively use and respond to change

He did, however, cover the first couple, emphasising the importance of observing and interacting with your garden space as you develop and manage it, and capturing and storing energy, particularly solar energy.

He also spoke to the following PowerPoint slide which illustrates the connection between the biological, built and behavioural environments as they pertain to permaculture:



He acknowledged that the diagram is from David Holgrem's latest book, *Retrosuburbia*.

Michael then asked: **What is a permaculture garden?**

The answer is that there is no such thing as a permaculture garden. There are gardens that are built upon the permaculture ethical foundations of earth care, people care and fair share and fit within the permaculture design principles and process.

DESIGNING YOUR GARDEN

When designing a garden, design with management in mind. In developing a garden, remember that it is better to develop a square metre per week than trying to develop the whole garden at once. If you develop a square metre per week, you will still develop 52 square metres in a year, and, in the process, you will be able to assess what size garden you can manage. This requires that you understand your own behaviour and your capacity to manage a garden. Self-regulate and accept feedback.

Consider your water budget. As a rule of thumb, summer vegetable gardens require 5 litres of water per square metre and trees also require 5 litres of water per day per tree. Use this rule of thumb to get some idea of what your garden's water budget will be.

Decide where to set your focus. Options include soil, water, and sunlight capture.

Identify Pinch points (i.e., factors that may constrain the development of the garden). Understand the limitations of the site (soil, rain/water, sunshine) and self (such as time and energy).

Site Type. This will influence/shape the approach to be taken. Sites can range through the following: container, courtyard, suburban block, communal garden/agriculture, broadacre cropping, grazing and agroforestry. The type of site will help you to decide where your focus and pinch points will be.

Considerations

1. Access.

- a. Plan, map out and mark the site using a can of spray paint.
- b. Leave the marked-out site plan for a couple of weeks and then walk it to check on accessibility.

2. Vertical Accents.

- a. There are four dimensions to consider in designing a garden – three spatial and one temporal.
- b. The height that plants grow over time may impact on the amount and quality of sunlight available to other plants.
- c. Remember that **a vegetable garden needs 6 to 8 hours of sunlight a day** in both summer and winter.

3. Fixed Garden Beds.

- a. Focus on soil management.
- b. Ensure access for wheelbarrow, etc.
- c. Decide on garden width. 1.5 to 2.5 metres allows for access from both sides of garden.

4. Fertilisers.

- a. Fertilise because gardening is an extractive process.
- b. All plants need all elements, not just N (nitrogen), P (phosphorus) and K (potassium). They do, however, need them in different concentrations.
- c. Sick/unhealthy plants attract pests (nature's composters). E.g., aphids.

5. Control Pests.

- a. Aphids are not simply pests. **Aphids are a keystone species.** Aphids are the base of many food chains in the garden, playing an important in a garden ecosystem. Many different predators eat aphids, and in turn, other insects, birds, and mammals prey on them. For example, lady beetles (ladybugs) eat aphids. Once aphids appear in a garden, lady beetles will usually follow in a couple of weeks. **The eating of aphids by lady beetles is part of what is known as a trophic cascade.**
- b. **"Trophic cascades are** powerful indirect interactions that can control entire ecosystems. Trophic cascades occur when predators limit the density and/or behaviour of their prey and thereby enhance survival of the next lower trophic level. Predators eat prey. By so doing, predators can impact both prey abundance and behaviour (e.g., prey get scared when predators are around and hide or move away). When the impact of a predator on its prey's ecology trickles down one more feeding level to affect the density and/or behaviour of the prey's prey, ecologists term this interaction a feeding, or trophic cascade." [SOURCE:

c. Attracting Beneficial Bugs.

- i. When you discover a bug in your garden, research whether it is beneficial. If it is not beneficial, decide how you are going to deal with it.
- ii. **Plant flowers** (annuals and perennials) **well in advance of planting vegetables**. Pollen eaters attracted to the flowers will, for the most part, eat pests. Michael favours passionfruit marigolds but stinking rogers will do a similar job. (i.e., provide a habitat for beneficial insects).
- iii. **Use plants that repel insects**. These include tree wormwood and some flowers.

Other Points Covered by Michael

- Some plants require minimal fertilisation. For example, macadamias and casavas grow in poor soil.
- **Use stable rather than soluble fertilisers.**
 - **Soluble fertilisers can be taken up by plants straight away. However**, through photosynthesis, plants take carbon dioxide out of the atmosphere and with it produce sugars (exudates) which the plants feed to the bacteria and fungi in the soil. Those fungi and bacteria, in turn, produce the elements essential for a plant's healthy growth. **Soluble fertilisers disrupt this biological process.**
 - **Stable fertilisers allow the soil biology to function properly.** This is essential for **indigenous microorganisms (IMOs)** to fulfill their key functions in healthy soils.
 - **NOTE:** Indigenous microorganisms are a group of innate microbial consortium that inhabits the soil and the surfaces of all living things inside and outside which have the potentiality in biodegradation, bioleaching, biocomposting, nitrogen fixation, improving soil fertility and as well in the production of plant growth hormones. SOURCE: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4624139/#:~:text=Indigenous%20microorganisms%20are%20a%20group,the%20production%20of%20plant%20growth>
 - **Rock mineral is one example of a stable fertiliser.** The Earthlife product *Garden Mate* is rock mineral based and can be purchased from Capalaba Produce. Another product is *NatraMin* by Ag Solutions. <https://agsolutions.com.au/natramin/product-range/home-garden-range/>
 - **Biochar and compost are habitats for soil biology, not stable fertilisers.**
 - **A useful tip.** Apply rock mineral to your compost heap so that when you use compost, you are providing for both soil biology and fertilisation.
- Ultimately, you should aim for no dig/no till gardening. That is important for maintaining soil biological health and soil health. It also helps to maintain carbon in the soil - contributing to better soil structure, food for soil biology and better water retention. Carbon is generally from soil organic matter.
- Having living plants in a garden improves soil water retention, as plants capture moisture from the atmosphere.
- **Green mulch/manure.**
 - Eventually gardens produce some mulch.
 - Best green manure for Michael results from planting one of the cheap bird mixes (with 8 or more seed types) and slashing it before seeds set for use as a green compost/mulch.

- Sugar cane mulch is good because it is seed free and still has some sugar content to feed soil biology.
- A living cover of soil is better than a dead cover.
- **Nut grass – what to do about it.**
 - Nut grass serves a useful purpose on loamy creek banks where its roots help to bind and stabilise soil, an important hedge against erosion. Often, the loam used for lawn dressing came from creek banks with nut grass.
 - There is no easy way to get rid of nut grass.
 - Nut grass is an early level succession plant. All plants will grow, but they will only thrive in the right environment. **Improving soil quality is one of the best ways to deal with nut grass.**

An Abundant Backyard

- **It takes time!**
- Michael presented a slide showing August Seeds to Sow. It included lists for both vegetables and flowers.
- **The list of vegetables** is included in the **August Garden To-Do List**, which can be accessed at <https://savoursoilpermaculture.com/august-garden-to-do-list/>.
- **The list of flowers** can be found in **A Year's Worth of Flowers** which can be accessed at <https://savoursoilpermaculture.com/a-years-worth-of-flowers/>.

Sundries/Questions

- ✓ In response to a question about which books are relevant, Michael noted that the ROGI library has a good collection. One book that he said was well worth reading is ***The Intelligent Gardener: Growing Nutrient-Dense Food*** by Steve Solomon with Erica Reinheimer (2012). The ROGI library has a copy of this book.
- ✓ In response to a question about how to build on what Michael presented to ROGI, Michael advised that he will be conducting a course ***Serious Backyard Abundance*** over three Saturdays (3, 10, 17 September from 9am to 4pm) at the Northey Street City Farm. Details can be found at <https://www.nscf.org.au/home/learn/sustainable-living-workshops/#backyard> or <https://www.eventbrite.com.au/e/serious-backyard-abundance-3-saturdays-tickets-372575191427>.
- ✓ In response to a question about crop rotation, Michael mentioned the **fourfold crop rotation, leggy, leafy, fruity, rooty**. That is, cycle crops from legumes (beans, peas) to leafy vegetables (lettuce, broccoli) to fruit bearing plants (fruit that grows on a vine – tomatoes, cucumbers, eggplants) to root vegetables (carrots, potatoes).
[NOTE: There is a great song about this (4:26) entitled ***Leggy, Leafy, Fruity, Rooty*** which can be accessed at <https://www.youtube.com/watch?v=8JhSIGt-u9k>.]

NOTES

- Michael has a short video on ***The Permaculture Framework*** (6:42) which can be accessed at <https://makingpermaculturestronger.net/michael-wardle-professional-permaculture-designer-and-educator/>.
- David Holmgren, the co-originator of the permaculture concept (with Bill Mollison), has a short video (5:52) ***Permaculture Ethics and Design Principles with David Holmgren*** which can be accessed at https://www.youtube.com/watch?v=l_-J71k2bXE.
- A fuller explanation of **Permaculture Design Principles** can be accessed at <https://permacultureprinciples.com/principles/>.