

## **Commercial Scale Permaculture at The Food Forest**

### **Annemarie and Graham Brookman**

#### **Permaculture- just a hobby in its continent of origin?**

Permaculture is a design system for sustainable human occupation of the planet that has, at its heart, the capture and effective use of energy. In the 1<sup>st</sup> World fossil fuels are so cheap and so freely available that a preoccupation with sustainable energy use is regarded by many a peripheral, even fanciful, compared with the imperatives of competitive pricing, export and effective marketing.

Permaculture is also unusual to 1<sup>st</sup> World dwellers in that it prescribes ethics by which judgements about land-use (and almost everything in your life) should be made. This is not unusual in more grounded societies, the relationship between land and man being spiritual, rather than exploitative, in our own Aboriginal culture and in many others. To 'hamstring yourself' by linking ethical beliefs to land-use was given up years ago by the average farmer, (whose father would not undertake tractor work on a Sunday due to ethical beliefs). Since then Landcare has had its day as a basis for land-use planning but alas the protected watercourses and the biodiverse windbreaks didn't quickly produce the promised **economic yield** so Landcare has declined in favour of land clearing.

The clear evidence that 1<sup>st</sup> World people have used the natural resources of the planet beyond its capacity does not actually make it any easier to make a go of sustainable land-use.

Nevertheless we decided to pursue the concept of a fully-developed permaculture on a piece of land that typified much of the agricultural area of Southern Australia.

#### **Australian rationalist governments and those who serve them**

It was one thing for us to try to create a permaculture property that was environmentally sustainable but, according to influential peers, a ridiculous ambit claim to say we were going to create an economically viable permaculture farm amongst the most asset rich and energy-consuming people on the planet.

While Norwegian farmers receive some \$8000 cash assistance for every hectare of their farms they convert to organic growing and a full extension service to help them do it, Australian land owners watch millions of dollars worth of taxpayers money go into the promotion of and research of genetic engineering and much more go into the support of chemical farming. Land clearing is supported through the taxation system and water is allowed to be withdrawn from rivers and aquifers at 1-2 cents per kilolitre (tonne). There is no government support for organic land-use in South Australia; not even part of an extension officer's time. We were on our own.

#### **The Food Forest – demonstrating the power of well-adapted perennials**

The Food Forest was founded to demonstrate that, against this backdrop, an ordinary Australian family, without any grants etc, could establish and run a semi-commercial permaculture property.

Being young and broke after some world travel we borrowed most of the money required to buy the original 29 acres. We always intended to make the place a commercial concern and had no hesitation in forming a partnership to run it (G&A Brookman). This allowed legitimate costs to be borne by the business and losses during start-up to be offset against off-farm income, as is the case in the great

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majority of Australian farms. Both of us worked in the education sector. We contemplated with the idea of a wider partnership with friends or a trust but the right friends were far away or too busy to commit.

We undertook a short course with Bill Mollison (and subsequently a PDC) and started development in 1983, a couple of years before the birth of our first child Tom, who spent much of his early childhood in a backpack 'helping' Graham with weeding and other farm tasks. We lived in rental accommodation and the old farmhouses always had more room than we really needed so we '*redistributed the surplus*' space by taking boarders, who paid rent for their rooms and the food which we grew in the garden, enabling us to *obtain a yield* from the resource in our care. The same students were very willing to get paid work on the permaculture block so they became part of the *small and slow solution* to its development. Building a web of human cross-reliance and multiple uses of resources (*every function is supported by many elements and every element has many functions – 'integrate rather than segregate'*) is central to our planning and is repeated again and again in the physical and social fabric of The Food Forest.

### **Evolution and planned succession**

A full permaculture design doesn't come to maturity for at least 20 years so while we planted pistachio nut trees as our main crop, we slaved at growing and picking gherkins for short term income, both to survive and to demonstrate to our friends at the Taxation Commission that we were serious about the project. When the pistachios finally started to produce, Graham continued to work off-farm to pay for food processing facilities but by then Annemarie had moved into full-time work on the property. Graham will ease out of off-farm work over the next few years. Whilst this seems a far cry from the 'jumping' (out of conventional employment) practiced by many early permaculturists, it has enabled the steady development of a model. We have enormous respect for many of those who 'jumped' and have lived much more planet-friendly lives than we have.

Early in the development we planted woodlots, timber lots and a biodiversity area; they were cheap to establish and get bigger and better every year. Tom has also grown and is now an experienced pistachio harvester and processor, as well having his PDC.

### ***Design from Patterns to Detail – the property plan emerges***

In the few months after the course with Bill in '83 we went crazy with aerial photos and celluloid. It was a risky plan as we were assuming that one day we'd be able to buy the neighbours' place, which had a house, barn, shed and old pig sty...i.e. Zone 1, 2 and some 3. With the blind enthusiasm of youth and a bit of a nod and a wink from the neighbours we developed the original block and were able, when the time came, to buy the neighbours' and establish the inner zones. Living on the property was bliss and improved the management enormously but this was the true test; would the design work? It has in fact performed well, surviving a number of major floods and fire threats. The inevitable 'lemons' include 2 yabbie ponds some thorny Boysenberries, and a pome fruit plantation that is a bit bigger than it should be.

### **Unplanned rate of succession – chaos in action**

The curiosity of small farmers, gardeners, permaculture enthusiasts and students was getting to be a serious challenge as we received more and more phone calls and letters requesting information and the opportunity to 'drop-in for a quick look' so regular open days in spring and autumn were commenced. This did not satiate the public's

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requirement for information so, *creatively using and responding to change*, we started a series of short courses, running 10-15 weekend workshops annually (on everything from organic vegie growing to agroforestry and free-range poultry management to bush tucker) and in 1996 commenced full Permaculture Design Certificate courses with the tuition help (paid) of about 9 other permaculturists from both the private and public sector, plus a fabulous Canadian chef and a supportive intentional community next door.

Income from education activities soon equalled the primary production income however the farm 'fought back' with a move toward value-adding; a pistachio dehuller, dehydrator, strawbale coldroom, wine and cider making equipment and cellar have increased income significantly as we have created our own brand and a range of products.

The many aspects of The Food Forest (*use and value diversity*) have provided more than a diversity of tasks to occupy us every waking hour of the day, they have provided ecological and financial stability and ways of harnessing the various talents of stakeholders - from communication skills to gardening, from consulting to strawbale building.

### **Physical structures for living, teaching, storage and food processing**

Meanwhile a revolution was going on, with regular strawbale building workshops, each of which needed a practical component. The builders of the structures were humans going about a self-gratifying learning process (*Use and value renewable resources and services*) and what is more, they paid for the education and thoroughly enjoyed it! The principal building materials, wood and straw (renewable) were sourced locally. This gave us the opportunity to add structures to the place – the coldroom, studio for accommodation, cellar-door area, indoor-outdoor cooking area, cellar, reception area and a passive-solar display extension to the homestead. These structures gave the perfect opportunity to *catch and store energy* with passive solar design, solar hot water, photovoltaics, capture of roof water and even the capture of a couple of small rebates in the form of RECS (renewable energy certificates) and government solar energy rebates. Needless to say these design elements save energy and expense every day.

### **Labour**

Whilst we have never been formal members of WWOOF (the international organisation Willing Workers on Organic Farms), wwoofers and other travellers with a fascination for permaculture, have kept up a steady stream of keen farm helpers, averaging one but sometimes reaching four at busy times. This has required time, teaching effort and patience but has rewarded us with wonderful friends all over the world. Paid labour has been supplied by uni students, contractors and permaculture graduates at award rates.

Our children have not regularly had the 'hard word' put on them to do farm work but they participate in picking and processing, hosting visitors, helping with building projects, catering for residential short courses, and open days. They are regularly working alongside others who are paid so they also get their due.

### **Market position**

Our name and logo came from considerable thought about our **mission** which was articulated 20 years ago:

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- To demonstrate that land can be managed in an environmentally sustainable way, producing healthy food and a healthy income
- To share information and skills for land management, self reliance, conservation and food production with others
- To be a rich and beautiful place to live, to work and to raise children with balance, wisdom and skills

‘The Food Forest’ is easy to remember and brings up a ready image in the minds of potential visitors and consumers. It is also an accepted term in sustainable land-use and permaculture circles. The logo is fairly simple and recognizable, picturing a harmonious utilization of the landscape by humans and by both indigenous and exotic plants and animals. It encapsulates quite a number of permaculture principles if you look hard! It is easy and cheap to use for labelling, letterheads etc.

The generation of income however requires more than a logo and a dream and in the 90’s it became obvious that the market for Certified Organic food was growing at a staggering rate. We had been growing vegetables organically for years but a particular organic retailer badgered us for some time to become **certified** and reap the rewards. It is a time-consuming exercise but the prices received (up to 100% higher price than conventional produce of the same type) and the Quality Assurance system that it puts in place, make certification worthwhile. The change to certified organic has meant that we have had to take control of processing and packing our products as there are so few certified processors in SA.

### **Permaculture vs organic**

Even now some of our produce remains uncertified because we use subsurface irrigation of fruit trees using our recycled domestic grey and black-water. We happily consume this produce because it is the most sustainably produced food on the property, but it does highlight the difference between permaculture (with no politically correct horror of humanure) and organics (constantly pandering to consumers and export markets). Ironically the greatest supporters of our reedbed systems are the officials from the SA Dept Health who have approved scores of domestic reedbed systems and champion the use of composting toilets in SA.

### **Ideal farmers for a built-up area**

Planners presumably love organic and permaculture farmers because they use no nasty sprays and can recycle much of the organic waste from a town. Peats Soils and Jeffries Garden Soils collect a large percentage of the green waste and now even food waste from the metropolitan area of Adelaide. Certified organic farmers like us rely on such composted material for inputs, closing the cycle as food leaves the farm and returns as compost. Sounds dangerously sustainable!

### **Inputs and Energy Efficiency**

In a bid to take out the Premier’s Food Award for Sustainable Industry last year we were encouraged to produce figures that show how sustainable a food forest can be. Graham trawled through the books of David Pimentel and assorted government websites claiming to offer measurements to validate claims of a ‘the triple bottom line’ outcome and came up with useful data.

Comments on the pistachio enterprise:

- Fuel use is low due to under-tree grazing
- Biocide use is low as part of the biodiverse, organic system

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- Irrigation is low due to the choice of well-adapted species and a desire for optimisation than maximisation in the system. A benchmark US nut farm uses 50 times as much water per hectare. It achieves 12 times the yield, but not 50 times! Even in Aust the average orchardist would use 10-25 times the water.
- Fertilizer use is low as legumes and animals cycle nutrients and yields are accepted as low compared with conventional production. Ash from the farm, composted pistachio hulls, grape mark and apple pressings from the property and other local composted material comprise the main fertilizers.
- Geese can exploit inter-row crops in the orchard in spring and early summer. They are a gourmet food that warrant the use of wheat screenings to get them up to size for Christmas. They are excellent weeders and 'fertilizers' as well as being profitable, low maintenance animals.
- Drying is efficient due to dehydrator design
- The ratio of output to input is about 5 times as good as that achieved by the benchmark US farm.
- Transport energy cost remains a problem for the Food Forest due to the need to take the nuts to the Sunraysia for needle-picking.

The homestead is extremely energy-efficient due to choice of construction materials, passive solar design and solar energy catching devices.

### **Water**

Low water use plant species were very carefully selected for the (relatively large) Zones 3, 4 and 5. Key crops are pistachios, carobs, olives, eucalypts, stone pines, jojoba, *Pinus canariensis* for sawlogs. Heavy mulching is used in Zones 1 and 2. Drip irrigation is used throughout and Zones 3 and 4 are dripped only at night. Deficit irrigation is used and is concentrated on strategic times of flowering and fruit filling. All water used for domestic or industrial purposes is treated by reedbeds and used for irrigation.

### **Wildlife at work**

The property is also home to hundreds of native species of birds (94), insects, reptiles and mammals. Over 8 hectares of the property are protected by a rabbit and foxproof fence which has created an environment for a bold experiment to integrate particular native animal species into a productive agricultural system. Brush Tailed Bettong population helps to control Sour Sob as well as naturally revegetating the bush section of the sanctuary which has been created from a bare paddock and contains over 100 native plant species, many of which are now self-regenerating. Cape Barren Geese are effective weeders of creeping weeds such as couch grass.

### **Permaculture education**

Education empowers people and has been synonymous with permaculture from the founding of the movement. With some 250,000 graduates around the world and massive public awareness it is staggering that permaculture has not flourished in our universities, schools and TAFEs....or is it? The cross disciplinary nature and simplicity of permaculture cut across academic domains and challenge complex sciences such as the creation of GMOs, with uncomfortable things like ethics and principles. Permaculture teachers are even meant to practice what they preach! Challenging stuff.

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However, with the advent of Accredited Permaculture Training, couched in the parlance of the VET sector and with an explicit place in the Australian Qualifications Framework perhaps things are due to change. We were confident enough to invite Naomi Coleman and Robin Clayfield to The Food Forest to train 20 new permaculture teachers via the COW and CALF courses last year. We are looking forward to the forum on APT as part of this conference and will be building APT into our training. Meanwhile we will not be abandoning our annual Permaculture Institute-accredited PDC and the range of practical short courses that have developed over many years to help those interested in straw-bale building, sustainable home design, free range chook management, organic vegetable growing, orchard production, preservation of healthy food, farm forestry etc. Special courses for Environmental Health officers (about composting toilets and reedbed systems) and other groups are arranged on an ad hoc basis.

The Learning Centre provides accommodation for about a dozen people (extra accommodation is nearby) and can cater for 30. There are a number of study rooms and one is set up with a significant library of permaculture books. About 10 permaculture-qualified tutors teach in our courses including David Holmgren and Robin Clayfield from interstate and a stack of South Australians. Tours are offered to school and other groups on a fee-for-service basis.

### **Secrets**

- Thinking and planning using all the power of the permaculture design process will give you a very energy-efficient, ethical and worthwhile project.
- Committing to a course of action for the long haul will help you develop a unique set of skills and knowledge and it will start to build a team of supporters who believe in what you are striving for. It will allow evolution and succession to provide the full dividend.
- Observation, cooperation, collaboration, syndication, education, possibly even some procreation. Understanding a bit about tax (or knowing someone who does) is certainly beneficial.

### **Success**

The Food Forest is Australia's largest grower of organically certified pistachio nuts and carobs; it produces a range of award-winning wines and many other products. It is recognised as one of Australia's best organic and most sustainable small businesses and as a 'good neighbour' by the community and the local council; it has grown steadily for over 20 years maintaining low debt and high equity levels. It produces good food, employs young people and cares for its environment. It is an example of what permaculture businesses can offer an enlightened Australia, particularly if national and local policies are framed to truly value sustainability.

Graham and Annemarie Brookman

*Note: Sections of text in italics are principally permaculture principles taken from David Holmgren's book 'Permaculture – Principles and Pathways Beyond Sustainability'*