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**NEXT MEETING—
SATURDAY 21ST
SEPTEMBER**

WINE MAKING

**** EVERYONE ****
to bring a small plate of goodies for morning tea and a spare mug if you have one.

Notes on Beekeeping for Permaculturists

Advice

1. DO put bees into your plans ... it can be a lot of FUN keeping them and they will benefit all your plantings, and your neighbour's too. They do sting but the reward is sweet.
2. It can be expensive to set up ... but it doesn't have to be. The choice is yours.
3. DO read up about beekeeping first ... there is an endless supply of information on the web.
4. If you are going to have them at home where there are neighbours close by (ie within 100 metres), especially if they have children, horses, dogs or swimming pools, make sure you do it in a responsible manner. Involve your neighbours in sanctioning the activity BEFORE any problems arise. Remember Murphy's law was written by a beekeeper!

How to

1. If you decide to travel the conventional path using the modern Langstroth hives and associated equipment, be prepared to spend a not inconsiderable deal of money. You will also need quite a deal of enclosed (shed) space to store and use this gear. For a person keeping 1 or 2 hives in the backyard I don't recommend this approach.

Beekeeping Supplies Shops

John L Guilfoyle
Wells Street, Bellevue
9274 5062

Symonds Seed
Hutton Street, Osborne Park
9443 7100

I STRONGLY RECOMMEND AGAINST buying second hand beehives and equipment, whatever the price ... even free!

2. I recommend the TOP BAR HIVE style of beekeeping in this case. It's a philosophy much more attuned to the Permaculture way of thinking.

TOP BAR HIVE BEEKEEPING references

www.anarchyapiaries.org

www.biobees.com

<http://outdoorplace.org/beekeeping/kenya.htm>

http://en.wikipedia.org/wiki/Top-bar_hive

Contact details

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The Dianella permaculture project

As a designer I have always hoped to have an entire project that I could design and construct from scratch. Last July I was lucky enough to have the opportunity to consult to a client that had just a project, the following is a quick tour of a residential Permaculture project completed this year in Dianella.

Simon (the client) after completing his Permaculture Design Certificate (PDC) and spending the day at my place in the hills asked me to come for look and draw up a design for a completed system. He had already begun with some food garden beds (6) in total that were flooded with great veggies, but the rest of the property was waiting for a transformation.



Simon was very clear on what he wanted 'everything' just like all of us, but true to my design beliefs I narrowed down the outcomes and inputs this property could produce as well as the time Simon would have available. These needs broke down into the following; Water Harvesting, Chicken enclosure, Waste management, Fruiting orchard and low maintenance.



In the design process I split the project into zones, aesthetic and welcoming (the front), fruiting and shapely (the orchard) relaxing and central (seated fire pit), strong and secure (chicken enclosure) attractive and functional (compost/production guild) private and practical (screen fences).

The existing property had a newly installed bore system and zones that would easily adapt to drip-line irrigation, access was good and services were easy to locate. As typical of this part of the metro area the soil was the grey '**Bassendean ancient dunes**' gutless and hydrophobic and it turned into powder-puff dust in summer YUCK!..... 12m³ of Green life soils fixed this!

The front was first it could be native, colourful, scented and bird attracting ~ needs were better access to the front door, a feature as a personal statement and a place for the wheelie bins to go. As there were already some limestone and cream render existing I instantly considered a rammed limestone path with keyhole shapes, curves and more organic in design. The bins could have their very own bin bay secure and out of sight but still accessible and practical.





A 9000 litre rainwater tank would be located at the rear in the planned orchard it is plumbed back to the laundry and toilet as well as the automatic waterers in the chicken enclosure, compost bays and wash bay sink; this tank will also act as a **heat trap** to nurse some tropical fruit trees through mild winter frosts.



The existing veggie tanks in wilderness green suggested to me to keep this colour as a theme and I came up with a 'one off' custom made half height three leafed clover raised banana bed as the centre point to this orchard area. Shaped garden beds made up the corners of the existing limestone edging and the introduction of some *hills* stone as edging softened the walkways.



Cracked gravel pathways assisted in the shapely design replacing sawdust paths around the existing veggie beds as well. The seated fire pit offers a private place to sit with good friends and a winter fire or to just sit in the sun relaxing and listening to the hens singing sweet nothings at you. The chickens have a central house on stilts with a droppings tray underneath and egg boxes each side, this is a split pen like a duplex, allowing for seasonal rotation if required; a small isolation pen under an established weeping mulberry can assist if needed.

The production guild consists of a wash bay to clean eggs and veggies, a lidded worm farm, two bay composting set with lids and a shade house for propagation. All timber work in the project is re-milled and recycled Jarrah from salvage as well as the corrugated tin too.



Text and photos provided by Bernie Elsner, Sustainable Alternatives.

16th OCTOBER HLPG GET-TOGETHER

The HLPG October get-together will be a visit to the Dianella property owned by Simon that has been designed as a permaculture garden by Bernie.

If you would like to come along to visit the property and learn more please **RSVP** to Silvia with number of people attending and your contact details. We will organise car pooling for those attending.

Honey and Bee Facts

About Honey

Since the earliest of days honey has been a source of food and energy. From the first food-gatherers to the ancient civilizations of the Egyptians, Greeks and Romans - records show the value of the bees and their honey.

Honey sold in shops comes from honeybees. The honeybee (*Apis mellifera*) was introduced to Australia in 1810 by Samuel Marsden who imported an unknown number of colonies from England although it is also reported that he brought the two (2) hives from Rio De Janerio not England.

The early settlers attempted to use the honeybees for pollination of fruit trees but the first attempts to establish bee colonies failed. A second successful introduction was made in 1822.

The honeybee is a most amazing insect. Its family (hive) consists of:

- workers
- Drones
- a Queen Bee

Bees collect nectar, pollen and water each day to take back to the hive so that future generations can live. The raw nectar comes from flowers. They mix this with secretions from their glands, thereby transforming it and after it is deposited in the comb, it ripens into honey.

Honey is primarily of vegetable origin. Its sugars are formed by a mixture of the sun, water and carbon dioxide in the air.

Bees produce:

- honey - to provide food reserves for the hive
- beeswax - to make honeycomb (traditionally used for candles and cosmetics)
- pollen - to nurture their young (which when dried and preserved is a valuable nutrient)
- propolis - to seal their hive from wind and rain (which can be used as an antiseptic)
- bee venom (which can be used to relieve arthritic and rheumatic pains).

WHY HONEY?

Honey is a quick, safe and natural energy giver because its simple sugars are quickly absorbed into the blood stream. Honey contains many vitamins and minerals.

Honey is made up of:

- natural sugars 80% (mainly levulose, dextrose and glucose)
- moisture 17%
- mineral traces 3%

There are many recipes which use honey for flavour - there are probably more than 100 different ways honey can add flavour to a food.

The bee's value however is not confined to making honey. Honeybees also help our fruit and vegetables grow. Without bees trees and flowers may not make fruit, nuts or seeds and there would be no honey. Bees, orchards and market gardens are an essential part of our food chain.

When the bee gathers nectar her body becomes dusted with pollen. As she moves from flower to

flower the pollen passes from male to female stigma and cross-pollination (or fertilization) takes place which leads to new seeds and plant regeneration.

Making the Honey

Bees need two different kinds of food. One is honey made from nectar, the sugary juice that collects in the heart of the flowers. The other comes from the anthers of flowers which contain small grains called pollen, which differ from flower to flower.

The nectar provides the bees with honey for energy while the pollen is a source of protein. All the vitamins the bees need are contained in the various nectars and pollens. As the bee crawls inside blossoms in search of nectar, pollen sticks to small hairs that cover its body. When the bees groom itself it moves the pollen to carry-bags on its hind legs.

The nectar is sucked from the flower and stored in a special honey stomach. When the bee is full she returns to the hive and passes the nectar by mouth to the honey making bees. This mixture is then transferred to a honey cell in the hive. The mixture then slowly converts into honey as its moisture content drops from about 70% in the nectar to less than 18% in the honey.

When the cell is full the bees seal it with a beeswax cap. The honey remains in place until it is needed as food in the hive. The pollen is also stored away; later it is mixed with honey to make a bee bread which is fed to the baby bees.

Honey Facts

Facts and figures, myths and folklore!

Honey has always been regarded as a food which provides health advantages and as a product which has 'healing qualities'.

Medical evidence of honey's importance as a health food has not existed until recent times although its value as part of folklore medicine has always been recognised. Today, reputable research organisations around the world now take seriously both the health benefits and healing properties of honey.

As a natural, unprocessed and easily digested food, honey can be regarded as an important part of our diet.

Busy Bee

There are three types (castes) of bees in a normal hive.

The Worker

This is the smallest bee, 13-17 millimetres long. The worker bee gathers food for the hive, cleans the hive and helps rear the young. The worker bee collects nectar and water through its long mouth-piece called a proboscis. Its tongue is used to suck the nectar from the flowers. On its hind legs there are pollen 'baskets' to carry the pollen back to the hive.

The Drone

These are the future fathers. Their only task is to mate with the Queen bee. Once the drone mates with the Queen bee he dies. Drones have no other real purpose. They cannot forage because their mouthpieces are too short for collecting nectar. They cannot make pollen. They cannot defend the

hive because they have no sting. They cannot make beeswax. Their role is to help the Queen bee breed.

The Queen Bee

The queen is the largest bee and each normal colony has only one. Her sole purpose is to lay eggs. She is the mother of the hive. She leaves the hive only to mate or when the hive reproduces by swarming. Her body is especially formed for egg-laying. Fertilized eggs hatch into larvae. These grub-like larvae become either workers or queens. Larvae who are fed Royal jelly only during rearing become the queens.

Eggs hatch into larvae in three days. Workers take 21 days to reach maturity from when the egg is laid (drones 24 days, queens 16 days).

The Honey Source

Australia is a great producer of honey because its climate and vegetation provide two essential ingredients warmth and blossoms from which nectar comes.

Australia's eucalypts in particular are good sources of honey and help give the honey its distinctive taste and density.

Most Australian honey comes from the native eucalypt box, gum, stinging bark and iron bark tree families. Distinctive flavoured honey is also produced by ground cover plants such as clover, lucerne and Salvation Jane which were brought to Australia from overseas

Beeswax

In addition to the export of honey, Australia is a large exporter of beeswax. It can be used as a base in many products including lipstick, hand creams and beauty creams. Beeswax is also used for furniture polish and candles. The beeswax which caps each honeycomb is removed before the frame is spun to release the honey. The honey is then strained to remove any beeswax. Beeswax is a remarkable wax because it does not melt readily. For example, it can stand temperatures up to 60°C.

The Gathering

Honeybees need nectar, pollen and water to feed the hive and make their honey.

Beekeepers help the bees by moving the hives from time to time into areas where there is a good source of nectar and pollen. For example, where there are lots of flowers or blossoms as in an orchard or forest. Once the hives are in place some of the worker bees go out scouting. This is usually done in a radius of about one kilometre from the hives. The scouts then report back to the hive to indicate to the other bees where the nectar and pollen source is to be found. Sometimes, honeybees may have to fly several kilometres from their home to gather food supplies.

Bees cannot talk. Instead their language is one of vibration and aromas. For example, to indicate distance to other bees in the hive, the scout bee uses a loud buzz and a demonstration dance. Wings vibrating swiftly as the bee dances in a circle indicate that the find is within 100 metres of the hive. If the source is further away, the dance will be in the shape of a figure eight.

The direction in which the scout moves and at what speed also helps communicate to the others where the source is located.

Once the workers know where to go they set out to gather nectar and pollen, from sunrise to sunset. Busy bees have great stamina and carry big weights.

The nectar is carried in a special honey stomach, while the pollen is carried in separate pollen baskets on the hind legs.

The Harvest

Once the honeycomb (or cell) in the hive is capped with beeswax it can be collected by the beekeeper (Apiarist). The honeycomb is removed from the hive by the beekeeper who uses a special knife (or cutter) to take the wax capping off without damaging the rest of the honeycomb.

The honeycomb is then placed in an extractor. Revolving baskets spin around until the honey is released. Little damage is done to the honeycomb which is then returned to the hive. The bees then set about removing any left over hone plus repairing and polishing each cell in preparation for new supplies of honey.

Honey is collected from the extractor and then strained to remove any left over beeswax. Once this is done the honey can be bottled.

The flowers from which the nectar is collected gives the honey its flavour and its colour. The bees themselves are able to distinguish between the perfumes of the flowers.

Australia has many, many flowers from which honey can be made. This means we have a wide range of varieties of honey.

Honey Bee Australis : Beekeeping in Australia
<http://www.honeybee.com.au/beefact/>



What is beeswax used for?

- * Candles and ornaments.
- * Lip balm, cosmetics and medical creams.
- * Foundation for new honeycomb in bee hives.
- * Used in sewing to lubricate needles and thread.
- * Keeps belts in vacuum cleaners, sewing machines and other tools from slipping.
- * Waterproofs shoes, fishline and clotheslines.
- * Lubricates doors, windows and tools.
- * Used on skis, toboggans and bow strings.
- * Provides a freely moving surface on irons and frying pans.
- * Used in furniture and floor polish.
- * In all, a very useful substance that no home is complete without!

<http://azuregardens.tripod.com/beefacts.html>

Why are Disappearing Bees a Serious Concern to the Environment?

Why are missing bees a concern? How to help disappearing bees survive and thrive? Are certain types of bees more at risk? Find out about the bee life cycle and why bees and pollination are important.

Missing bees are signaling important environmental issues.

Disappearing bees are an issue because honey bees pollinate our grains, fruits, and vegetables. Our meats come from animals that are fed grains. Our milk and dairy products come from grain fed animals. The entire agriculture cycle would be affected by disappearing bees.

There are about 20,000 different bee species in the world, including honey bees, bumble bees, ground bees, orchid bees and many more.

During the past decade, more and more disappearing or missing bees have been reported.



Photo courtesy of www.health-benefits-of-honey.com

Entire bee hives have collapsed as the bees never return and, in fact, disappear. This issue has been named as "colony collapse disorder" and it is now becoming recognized as a world wide issue.

In the United States, there has been a reported 30% decrease in honey bee population over the last three years. The cause of the missing bees is still undetermined although scientists are looking at genetically modified foods, wireless technology, pesticides, parasites, and potentially new viruses.

It is important for us to recognize what impact our actions and our interference has on wildlife. By commercializing bee colonies, we have provided a much easier target for mite infestations and transmissions (many colonies all in close proximity with one another).

By genetically modifying foods we are interrupting nature's balance. By using pesticides and intensive farming techniques we are wiping out bee hives and bee colonies. We have interfered with the bee life cycle and now are witnessing the impact; disappearing bees.

Bees and pollination are of critical importance to our agriculture and, therefore, to our world's food supply.

Bees and Pollination

There are three types of pollination: self pollination, pollination by a different flower within the same plant, and pollination from a different plant (also known as cross-pollination).

Wind and/or bees are primarily responsible for cross-pollination. Honey bees are very efficient at pollination. The entire colony over-winters and therefore they are ready to 'work' in the Spring when the flowers arrive.

The Honey Bees have forked body hairs and a pollen 'basket' that allow them to carry pollen back to the colony. It is the overflow of pollen, and the travel from flower to flower, that does the job of cross-pollinating. Honey bees have an effective communication system amongst themselves to direct bees to flowering plants and crops. Bees are attracted to flowers and flowering plants and crops by sight (through color) and smell.

Reasons for Disappearing Bees

- Intensive farming methods destroy bee colonies. Bees nest in soil or trees or bushes. By eliminating the brush and cultivating every inch of land, by using pesticides during the growing season, we are eliminating bees.
- Additionally urbanization is taking its toll. Land is being used for highways, buildings, and spreading out into traditionally rural areas. Bees are not thriving under these conditions.
- Wireless technology produces radiation and while scientists have not yet proven a cause/effect relationship, there is a strong belief that it is a factor in the missing bees issue.
- Additionally genetically modified foods crops are believed to have an impact on the disappearing bees. More research on this potential cause is being conducted.
- Mites (Varroa and Tracheal mites) are also responsible for the missing bees issue - these mites are killing bees in large numbers. Some scientists argue that if the bees were healthier and if they had better and healthier living conditions the mites would have less impact because the bees would have more resistance.

Organic Food for Everyone

<http://www.organic-food-for-everyone.com/missing-bees.html>



Photo courtesy of www.public-domain-image.com

The bug threatening WA's bee colonies—the Varroa mite

REBECCA CARMODY: A tiny insect capable of wreaking havoc within our agricultural sector is edging closer to Australia's shores.

Just as the equine flu outbreak cost the racing industry millions, the varroa mite has the potential to inflict severe damage to the fragile bee industry and those in agriculture who depend on it.

Western Australian authorities have moved to protect our clean green reputation but scientists warn it's a case of when, not if, the bug will arrive. Mark Bennett reports.

MARK BENNETT: Estimates vary but roughly one in every three mouthfuls of food you eat depends in some way upon a single species of insect.

Vegetables, fruit, nuts and of course honey all rely on the workaholic honey bee, the unsung hero of Australian agriculture.

But the Western Australian bee industry is now facing a threat that has devastated the rest of the globe's bee colonies and is creeping closer to Australia every year.

PETER DETCHON: All the pundits are saying to us that, despite our excellent biosecurity precautions, it will arrive in Australia at some stage. The only question is when.

MARK BENNETT: The mite is varroa, the invader that could decimate the industry has already penetrated New Zealand's biosecurity barriers and is poised to cross the Tasman.

PETER DETCHON: There's no doubt that it will totally destroy the feral bee populations in Australia. And in WA we have a lot of feral bees.

ROB MANNING: The trouble is that when they get this mite, it will cause the industry a lot of havoc in the first two years where beekeepers will probably leave the industry.

MARK BENNETT: It's been in America for 20 years. But it's more than just a flea on a dog. Unchecked, it eventually infests the bees and destroys their colonies, chemical miticides are the only solution.

ROB MANNING: In WA we each got quite a green image to keep. We've fought long and hard to have a natural product so we don't want any chemicals used in bee hives so we can do without the varroa mite. We just don't want it.

MARK BENNETT: The State's isolation is its greatest defence and scientists have had a head start in the race to detect the threat.

Bill Trend conducts biosecurity checks to find unwanted bugs in honey products coming across the border.

(to BILL TREND): Does it worry you that some of this stuff might be escaping detection?

BILL TREND: For sure. Yeah. People are ignorant of what they're bringing with you and you would think some of them would never eat again some of the products they have in their luggage.

I am now taking frames out to examine written the brood for anything abnormal. Agricultural officers are constantly checking for early signs of diseased hives. These sentinel bee hives are set up by

quarantine officers to alert them to a possible invasion of foreign bees from either overseas or interstate state and they're strategically placed not far from shipping terminals and airports so that when the hungry bees go looking for food eventually they will be found here.

MARK BENNETT: Crops worth almost \$2 billion and 11,000 jobs ride on the wings of the industrious bee. It's the pollination of food crops that makes the honey bee such an invaluable asset.

When the varroa mite eventually strikes it's thought only treated colony also survive, and improving productivity from the remaining colonies remain the focus.

Rob is trying to capture pollen from the working hive, when they get on to a flower they pollinate it quicker than they otherwise would.

ROB MANNING: I'm having trouble keeping this smoker alight.

MARK BENNETT: Peter Detchon has seen the number of beekeepers decline in WA over the past 20 years. He believes the pollination industry could provide greater profitability for the struggling keepers, and improve food productivity.



Photo courtesy of www.public-domain-image.com

(to **PETER DETCHON**): Can you demonstrate why you think this apple wasn't been pollinated?

PETER DETCHON: It's very obvious to see. From this side the fruit looks perfect but when you turn it around this side of the fruit, half of it is not there. It's very misshapen.

That's a classic for carpules. There should be two seeds in each of the five carpules and some of those carpules will be empty. That will affect its storage capacity, its flavour and the grower's ability to be able to extract a premium in the market place for his fruit.

MARK BENNETT Meantime the local honey industry, which prides itself on its chemical-free status, is preparing for its inevitable decline in production.

EDUARD PLANKEN: Agriculture will be impacted. We will be impacted as an industry because the beekeepers will be have a higher cost of production and then they will have to manage it and for an interim period we won't get some of the volumes of honey or by-products that we tradition ally have.

MARK BENNETT: Consumers will still have honey on the shelf, although it may increasingly come from China, Vietnam and South America.

EDUARD PLANKEN: In the end, I think the industry will recover from it and I think overall if it did occur maybe long term they might be better off even but it's hard to know and quantify.

Transcript

Broadcast: 07/09/2007

Reporter: Mark Bennett

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Bee facts

- The honey bee has been around for millions of years.
- Honey bees, scientifically also known as *Apis mellifera*, are environmentally friendly and are vital as pollinators.
- It is the only insect that produces food eaten by humans.
- Honey is the only food that includes all the substances necessary to sustain life, including enzymes, vitamins, minerals, and water; and it's the only food that contains "pinocembrin", an antioxidant associated with improved brain functioning.
- Honey bees have 6 legs, 2 compound eyes made up of thousands of tiny lenses (one on each side of the head), 3 simple eyes on the top of the head, 2 pairs of wings, a nectar pouch, and a stomach.
- Honey bees have 170 odorant receptors, compared with only 62 in fruit flies and 79 in mosquitoes. Their exceptional olfactory abilities include kin recognition signals, social communication within the hive, and odor recognition for finding food. Their sense of smell was so precise that it could differentiate hundreds of different floral varieties and tell whether a flower carried pollen or nectar from metres away.
- The honey bee's wings stroke incredibly fast, about 200 beats per second, thus making their famous, distinctive buzz. A honey bee can fly for up to six miles, and as fast as 15 miles per hour.
- The average worker bee produces about 1/12th teaspoon of honey in her lifetime.
- A hive of bees will fly 90,000 miles, the equivalent of three orbits around the earth to collect 1 kg of honey. Bees from the same hive visit about 225,000 flowers per day.
- It takes one ounce of honey to fuel a bee's flight around the world.
- A honey bee visits 50 to 100 flowers during a collection trip. One single bee usually visits between 50-1000 flowers a day, but can visit up to several thousand.
- The bee's brain is oval in shape and only about the size of a sesame seed, yet it has remarkable capacity to learn and remember things and is able to make complex calculations on distance travelled and foraging efficiency. Bees have a magnetic band around their brains to help them navigate.
- A colony of bees consists of 20,000-60,000 honeybees and one queen. Worker honey bees are female, live for about 6 weeks and do all the work.
- The queen bee can live up to 5 years and is the only bee that lays eggs. She is the busiest in the summer months, when the hive needs to be at its maximum strength, and lays up to 2500 eggs per day.
- The healing use of the products from a honeybee hive is called Apitherapy.
- The average hive temperature is 93.5 degrees.
- Beeswax production in most hives is about 1 1/2% to 2% of the total honey yield.
- Bees communicate to one another by dancing, which can be understood in complete darkness.

Sources:

http://geelongbeekeepersclub.com/info/honey_bee_facts.html

<http://azuregardens.tripod.com/beefacts.html>

<http://www.benefits-of-honey.com/>

Scientific classification

Honey bees comprise the genus *Apis* in the family Apidae, order Hymenoptera. The European honey bee is classified as *Apis mellifera*, the Indian honey bee is *A. cerana*, Koschevnikov's honey bee is *A. koschevnikovi*, the dwarf honey bee is *A. florea*, the andreniform dwarf honey bee is *A. andreniformis*, the giant honey bee is *A. dorsata*, and the mountain giant honey bee is *A. laboriosa*. The Italian race of the European honey bee is *A. m. ligustica*, the Carniolan race is *A. m. carnica*, and the Caucasian race is *A. m. caucasica*.

Research has shown that unlike most other sweeteners, honey contains small amounts of a wide array of vitamins, minerals, amino acids and antioxidants.



Photos courtesy of www.public-domain-image.com

Bees and pollination

Honeybees are the most important pollinators of agricultural and horticultural crops. Most fruit, small seed and many vegetable crops require pollination for the production of economic yields.

Pollination means the transfer of pollen from the male part of the flower, the anthers, to the receptive female part, the stigma. Pollination is a pre-requisite to the fertilisation of ovules within flowers which leads to the growth of seeds and fruit. Fertilisation occurs when the pollen grains on the stigma germinate and grow down the stem of the stigma (the style). The sperms of the pollen unite with the ovules in the ovary of the flower and subsequently produce seed.

The value of the honeybee as a pollinator is far greater than its value as a honey producer.

Not all crops need pollination. Some can produce fruit without fertilisation of the flower. Some flowers are self pollinated, which means that pollen is transferred from the anther to the stigma of the same flower or flowers on the same plant variety. Although this transfer can be achieved by wind or rain, insect pollinators are the most effective.

Other flowers are cross pollinated. In these cases, the pollen is transferred from the anther of a flower on one plant variety to the stigma of a flower on a different plant variety. Plants requiring cross pollination usually cannot produce fruit from their own pollen. Again, the most important and efficient carrier of pollen from the anther to the stigma for such plants is the honeybee.

Honeybees and Pollination (Agdex 481, No. 350)

Food & Agriculture

Department of Primary Industries, Parks, Water and Environment, Tasmania

HEALING THE BODY

Women's health in the 21st Century (part 1)

For the past five centuries or so Western Women's Health has been undermined and subjugated to the patriarchal system that even in this so called liberated age still dominates what happens to women's bodies. Yes there is more awareness and yes progress has been made but we still have a long way to go. Women from Ancient cultures like the American Indians, Australian Aboriginals, Amazon tribes all had knowledge of and used herbs for their healing, as preventative care and to correct imbalances in their systems, as well as taking care of their children's health. We unfortunately have lost that art and are only now, slowly regaining some of that knowledge, hence reclaiming back the power of self-healing and self-medication.

I too often have women come to my clinic who are suffering because of a lack of knowledge on their own part and a lack of caring from our medical system. My aim here is to share what knowledge I have with you so that you can begin your journey of self-healing. I also hope to pique your desire to expand your own knowledge of herbs, so that you may then use that in your daily life. The ongoing premise is that you will then pass that knowledge onto your children, grand children and other women.

In order to keep some form of continuity I will start with puberty { the maiden } work my way through to childbirth { the mother } and then to menopause { the wise woman } and beyond. I will also cover several of the herbs I mention in depth at the end of this article.

Puberty: When a girl reaches puberty, here in western society, it is generally not celebrated or seen as a rite of passage. Apart from health issues there can be a feeling of shame and awkwardness. I will deal with the various health issues here and remedies that can be applied.

The first and most obvious signs of puberty are pimples and acne. When you get them you think that you are the only person in the world who has them and that they are HUGE !!!

Acne: The main cause of acne is the increase in male hormones, which in boys is obviously greater than in girls. These hormones stimulate the production of an oil substance called sebum, which comes through the hair follicles to lubricate the skin. During adolescence unfortunately, the secretion of sebum is too much and the hair follicles get blocked. From this blockage can come blackheads, white heads, pimples or painful cysts ie: acne. Also the propensity of teenagers to consume large quantities of sugars and carbs eg: chips, chocolate, sweets, greasy foods, and all of these exacerbate and aggravate acne.

What you can do: Firstly, watch your diet and obviously a proper skin care regime will help, but being careful not to wash the face with soap to much as this strips away all the oils and your body will produce more to compensate and then you have a vicious circle. Increase your intake of fresh fruit and vegetables, preferably organic and supplements of Vitamin C, zinc and spirulina. For a simple and effective herbal face wash infuse lemongrass, chamomile, thyme, and rosepetals. The lemon grass and the thyme are antiseptic, the chamomile is anti-inflammatory and the rosepetals are astringent and soothing. The lemongrass also balances the oil production of the skin. Internally a tea of Chaste berry, Shatavari, {both balance the hormones and Shatavari nourishes the female reproductive system}. Lemongrass tea is also helpful.

Premenstrual Tension: Not all women experience this but for those of you that do, you know the symptoms, anxiety, tension, depression, agitation, fluid retention, sensitive breasts or even swelling in the breasts. These are responses to changes in the hormone levels {powerful things} in the body. There are also psychological factors, which can affect what happens in your body, e.g.: how you view and relate to your menstruation, as a celebration of your womanhood or as an inconvenience.

As it can be a very stressful time, nervine herbs can be used to help relax you. The prime herbs I would suggest are Chaste Berry {Vitex Agnus castus} and Hops which increases estrogen but is also a calming herb, Passion flower, Skullcap both of which are calming nervines. Dandelion leaf {a diuretic} will also be helpful if there is water retention. Dandelion is particularly useful as it contains potassium, which can be lost through diuresis.

Dysmenorrhoea {painful periods} A condition which most women have experienced at some time. There is cramping, which accompanies the period which can range from mild to very intense and debilitating. Uterine tonics, antispasmodics and nervines are the herbs that are needed to assist in alleviating this condition.

With regular use of herbs you can completely eliminate this condition.

Uterine Tonics:

Black Haw
Cramp Bark
False Unicorn Root
Ladies Mantle
Raspberry leaf
Wild yam
Nervines:
Damiana
Hops
Lemon Balm
Lime flowers
Passion Flower
Skullcap
St. Johns Wort
Withania

Antispasmodics

Black haw
Chamomile
Cramp Bark
Motherwort
Passionflower
Wild Yam
Anodynes
Corydalis
Meadowsweet (not if taking Warfarin)
Willow Bark (as above)

As you can see, several of the herbs I have listed are multifunctional which makes putting your teas together easier. I would also include Chaste Berry for it's normalising effect on hormonal levels.

Amenorrhoea (Absence of menstruation)

There are women that I have spoken to who think that this is great but to me this is a denial of your womanhood. The first and most obvious thing to check is whether you are pregnant or not. If no, then there is a problem which needs to be addressed.

In addition, if you have just come off the pill, this can also occur as your body is trying to come back to balance. The most important thing is to get your hormone levels balanced, stimulate your period and get your body back to its natural rhythm. Chaste Berry is the primary herb combine with Black cohosh, Blue cohosh, False Unicorn Root, and Mother wort. Also to stimulate your period you can use Mugwort , Parsley Root, Pennyroyal, Rue , Southernwood, Tansy, Wormwood but in small doses as they are all potent herbs and can be toxic in large doses.

Menorrhagia.

This is when your flow is greater than normal, which can occur on occasions for several reasons, excess stress, hormone imbalance. The primary herbs to use in this instance are astringent herbs that are specific to the female reproductive system, plus Chaste berry and Shatavari to correct any hormonal imbalances.

Astringent herbs:

Beth Root
Ladies Mantle
Perriwinkle

Raspberry leaf
Shepherds Purse.

If this problem persists, you should get a gynaecological check up to ensure that there isn't a more severe problem eg fibroids, cysts.

Metrorrhagia

A very dear friend, Lisa for whom I did a Handfasting early last year suffered with this condition for 5 years { I have her permission to write about her experience }. She had D & C's, was on the pill, "poked, prodded, etc" "{ her words } all to no avail. After one course of herbs she was celebrating and back to normal. Three months later she was still taking her herbs and everything was hunky dory. This was a few years ago and everything is still fine.

This condition is when you bleed in the middle of your cycle or at anytime through your cycle, or as with Lisa, continuously. Obviously the problems are apparent, anemia through loss of iron, via loss of blood, fatigue, not to mention finances spent on extra pads and tampons. As well it can have an affect on your sex life for several reasons.

To counter the loss of iron you should eat iron rich foods like spinach, dried apricots, sesame seeds/tahini, kelp, pumpkin seeds, dulse and leafy greens. Iron tablets tend to have a constipating effect which is another problem you don't need. Also drinking Nettle tea, having steamed nettles is also good as nettles are very rich in iron as is Raspberry leaf. As for herbs the following will help get things in balance and back to normal: Beth root, Black Haw, Chaste berry (of course) Cramp Bark, Ladies mantle, Shatavari, Shepherds purse.

The Pill

Yes I know it's convenient and is supposedly helps balance your hormones and gets rid of your acne BUT, it is not natural even though the first pill was formulated using extracts from Wild Yam. There are alternate methods of contraception and I think that it should be a Joint Responsibility not just left up to the woman.

Many people do not like using condoms because they don't feel good etc, etc, but better than an unwanted pregnancy. There are many side effects of the pill, such as Mild Effects: headaches, irritability, and nausea. Serious effects: loss of hair, emotional depression, gallbladder disease and much more. If you are interested check out a book titled "The Essential Guide to Prescription Drugs" by James Rybacki and James Long. Read the section on Oral Contraceptives. Several of my students have gone off the pill since reading the above reference material. If you are on the pill and decide to stop taking it the following herbs will make your transition easier. It is difficult to get pregnant immediately after having been on the pill for sometime and then coming off it. There are also a number of Naturopaths and Herbalists that teach and incorporate in their practices Natural birth control, Fertility management and Natural pregnancy techniques. The herbs are Black Haw, Borage, Chaste Berry, Motherwort, and Shatavari.

Pregnancy and childbirth.

I still find myself in awe and wonder at the miracle of birth and having been present at two of my children's births I still feel that they are up there amongst the most amazing experiences I have had in my life. The process from conception to childbirth can be a breeze for some women and for others it can be a very intense and not so pleasant experience. Fortunately nature has provided us with many herbs to help with all the possibilities that may arise. Even so there are a number of herbs that should be avoided during pregnancy. They are as follows: Barberry, Golden seal, Juniper, Male fern Mandrake, Motherwort, Mugwort, Parsley Leaf & root, Pennyroyal, Poke root, Rosemary, Rue, Sage, Southernwood, Tansy, Thuja, Wormwood.

A Caution. If you are pregnant and don't wish to be, see a qualified herbalist before taking any of the above herbs to bring on an abortion.

Threatened or Recurrent Miscarriage

Miscarriage can occur for a number of reasons, poor uterine integrity, low levels of hormones, stress, trauma, inadequate diet. It can also be your body's way of letting you know that you are not ready to bear a child. The following herbs will help tone the uterus and protect against miscarriages: Black haw, Blue Cohosh, Chaste berry, Cramp Bark, False Unicorn Root, and Shatavari. If there is stress and anxiety involved specific nervine herbs like Jasmine, Passionflower and Skullcap will be helpful.

Morning Sickness

Again this varies from person to person, some women don't suffer at all and others are sick constantly. The major changes in hormone levels as well as low blood sugar and possibly low blood pressure all can contribute to making you feel unwell. It can also be the body clearing toxins from the system in preparation for your pregnancy.

Different people will tell you all sorts of home remedies to try which have worked for them or someone they know. Generally one thing that seems to work is eating some toast or crackers / dry biscuits. They are carbohydrates and consequently increase your blood sugar levels. A very nice tea which will help is a combination of Chamomile, Ginger, Meadowsweet and Peppermint with a slice of lemon {for the Liver} and some honey. Also herbs that will help regulate blood sugar like Goats Rue, Gymnema and Jambul can be useful. If there is Hypotension involved Hawthorn Berries would be the best herb of choice.

Labour

Pretty self explanatory and inevitable assuming you don't have a Caesarean and miss out on the incredible experience of giving birth. To help make your labour easier, drink Raspberry leaf tea from the second trimester onwards. When it is time to give birth drinking a mixture of Cramp Bark, Motherwort and Squaw vine will be of great benefit. If there is excessive bleeding after giving birth {after you have delivered the placenta} any of the herbs I mentioned for Menorrhagia or Metrorrhagia will be of benefit.

To stop Post Natal Depression, taking chaste berry to normalise your hormones would be extremely wise as well as a few natural anti-depressant herbs like Clary Sage Flowers, Damiana, Jasmine flowers, Oats and Rose Petals.

Breastfeeding

For some women this is no problem, their milk comes in from day one and can even be excessive, ie: leaks, Mastitis. For Mastitis cold cabbage leaves do work as well as Rose geranium essential oil, taking care not to get it on your nipples as your baby will not appreciate it. For those whose milk production is low or difficult there are herbs called Galactogogues, which stimulate breast milk production. They are Aniseed, Basil, Blessed Thistle, Caraway, Dill, Fennel, Fenugreek, Goats Rue {which by the way can increase breast size if you are not lactating, A natural alternative to an expensive breast job}

If you no longer wish to breast-feed or for some other reason wish to stop your milk flow then use a tea of Red sage Or Garden Sage.

Happy Herbing
Dipaunka

Part 2 of this article will be in the September issue of this newsletter.

Good Flies

Not that there are bad flies – they're all just doing their jobs, but these ones are a little more appealing than the common bush or blowfly.

These are flies that are beneficial to us because they are predators of insects we often aren't keen on, or they are important pollinators.

Flies belong to the Order of insects known as Diptera. This Order is characterised by some distinctive features, including the fact that members of the order look fairly similar.

- All flies have complete metamorphosis, that is, there is egg, larva (maggot), pupa and adult.
- The larvae have no true legs and are mostly referred to as maggots.
- Those huge compound eyes are common.
- And although some species are wingless, most have wings.
- The order also includes mosquitoes, gnats, midges and leafminers.

Robber Flies (Family Asilidae)

Keep a look out for robber flies, for example. They aren't pretty but they are great predators. They are very successful predators with huge appetites, and they'll eat whatever insects happen to wander through.

Robber flies hunt by perching somewhere where they can see suitable prey and usually in a sunny open area. They catch prey in mid air, gripping with strong legs and modified mouth parts. Robber fly mouth parts have evolved to include a form of stabbing proboscis. The proboscis injects saliva containing toxic enzymes into the prey. Neurotoxins paralyse the prey and then proteolytic enzymes digest the protein in the body tissue. The fly then returns to its perch with the prey (as shown in the photograph above) and consumes the liquidised body tissue.



Robber flies can immobilise and eat bees, wasps, dragonflies, grasshoppers and even spiders.

Long legged fly(Family Dolichopodidae)

This fly looks less like a fly because of its long dainty legs and thin body. It's metallic and quite bright with transparent wings that have interesting markings on them.

The adult Dolichopodid fly (as it is referred to scientifically), only grows to about 6mm in length. It preys on smaller soft bodied insects such as aphids.

The larvae live in moist soil and under tree bark and are either scavengers or predators of other insect larvae.



Tachinid Fly (Family Tachinidae)

There are 542 named Australian species of Tachinid flies, making the Family Tachinidae one of the largest Families of the order. They all parasitise other insects, usually the larvae of moths and butterflies, but also the larvae or adult of beetles, and the adults of bugs and grasshoppers.

One species parasitises caterpillars just before they pupate. The result is that several flies emerge from the chrysalis instead of a butterfly.

The larvae of this fly are well adapted to their life inside their food!



Tachinid flies are extremely diverse in appearance. They can be quite drab or brightly coloured. And some even mimic wasps.

Hover Fly (Family Syrphidae)

These unusual little flies have a characteristic flight pattern. They hover in one spot, then suddenly move forwards or sideways, then hover again. They can often be seen in large numbers.

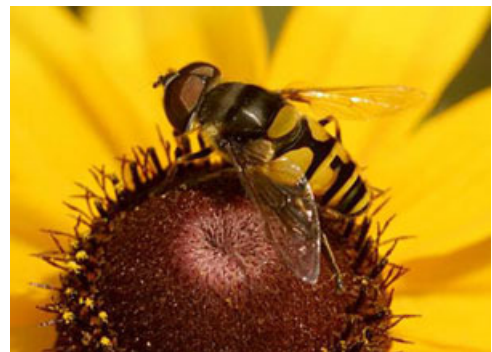
Their black and yellow stripes mean they can be mistaken for bees or wasps, and that's their thing.

They have actually evolved as wasp and bee mimics.

They all have large heads, large eyes and about 10 to 15mm in length. These wasp mimics tend to have a narrower waist.

The adults feed on nectar and pollen, and their larvae eat aphids.

They are important pollinators of plants.



Some species lay their eggs in stagnant water, where the maggots become a predator of mosquito larvae.

Another's larvae live by scavenging in ant nests. They mimic the ant's chemicals and move around undetected. A true cloak of invisibility!

Information Sources:

Davenport, J., *The Garden Guardians*, published by Imaginality (www.imaginality.net)
 Kerruish, R.M. & P.W. Unger, 2003, 3rd edition, *Plant Protection 1*, published by RootRot Press, ACT

University of Sydney, School of Biological Sciences
 Photograph of Robber Fly courtesy of Keith Power, Toowoomba, Qld.
 Photograph of Hover Fly courtesy of Troy Bartlett

December 15th, 2009
 Sustainable Gardening Australia
<http://www.sgaonline.org.au>


pH Plant Preferences

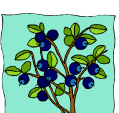
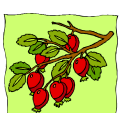
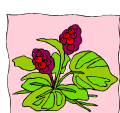
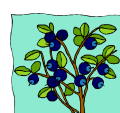
Vegetables, Fruit, Herbs and Food Plants

Plants are listed here in columns according to the pH level they prefer.


Note that some are very sensitive to pH levels outside their tolerant range, in which case they will not appear in more than one column



pH 4.5	pH 5.25	pH 6.0	pH 6.75	pH 7.5
Bilberry	Apples	Almond	Alfalfa	Alfalfa
Cranberry	Bilberry	Apples	Almond	Artichoke Jerusalem
Blueberry	Blackberry	Egg Plant	Apple	Asparagus
	Chicory	Broad bean	Artichoke Jerusalem	Avocado
	Cranbury	Bean, climbing	Asparagus	Barley
	Gooseberry	Bean, French	Avocado	Bean French
	Pineapple	Bean runner	Barley	Beetroot
	Potato	Blackberry	Bean, broad	Beet, sugar
	Rhubarb	Broccoli	Bean, climbing	Broccoli
	Rosemary	Brussels sprouts	Bean, French	Cabbage
	Sage	Cabbage	Bean, lima	Capsicum
	Strawberries	Capsicum	Bean, runner	Cauliflower
		Carrot	Beet, sugar	Celery
		Cauliflower	Beetroot	Cherries
		Celery	Broad bean	Chives
		Corn	Cantaloupe melon	French beans
		Cucumber	Capsicum	Grapes
		Currants	Carrots	Garlic
		Eggplant	Cauliflower	Horseradish
		Endive	Celery	Leek
		French bean	Cherries	Lettuce
		Gooseberry	Chives	Mulberry
		Kale	Climbing bean	Onion
		Lemon	Cucumber	Parsnip
		Lentil	Currants	Peach
		Lettuce	Endive	Peas





pH 6.0	pH 6.75		pH 7.5
Marrow	Garlic	Rhubarb	Pecan
Mulberry	Grapes	Rock melon	Pepper
Mustard	Grapefruit	Salsify	Plum
Olives	Horseradish	Shallot	Radish
Onions	Artichokes	Soya bean	Spinach
Parsley	Kale	Spinach	Sweet corn
Parsnip	Kohl rabi	Squash	Tomato
Peach	Leek	Swede	Turnip
Pear	Lemon	Sweet corn	Watercress
Pea	Lentil	Silver beet	
Pepper	Lettuce	Thyme	
Pineapple	Lima bean	Tomato	
Plum	Marrow	Turnip	
Potato	Melon	Watercress	
Pumpkin	Mulberry	Watermelon	
Radish	Mushroom	Zucchini	
Raspberry	Mustard		
Rhubarb	Olive		
Rosemary	Onion		
Rye	Orange		
Sage	Parsley		
Shallots	Parsnip		
Soya bean	Pea		
Squash	Peach		
Strawberry	Pear		
Swede	Pecan		
Sweet corn	Pepper		
Thyme	Plum		
Tomato	Pumpkin		
Turnip	Quince		
Watermelon	Radish		
Zucchini	Raspberry		

Importance of pollinators in changing landscapes for world crops

Abstract

The extent of our reliance on animal pollination for world crop production for human food has not previously been evaluated and the previous estimates for countries or continents have seldom used primary data. In this review, we expand the previous estimates using novel primary data from 200 countries and found that fruit, vegetable or seed production from 87 of the leading global food crops is dependent upon animal pollination, while 28 crops do not rely upon animal pollination. However, global production volumes give a contrasting perspective, since 60% of global production comes from crops that do not depend on animal pollination, 35% from crops that depend on pollinators, and 5% are unevaluated. Using all crops traded on the world market and setting aside crops that are solely passively self-pollinated, wind-pollinated or parthenocarpic, we then evaluated the level of dependence on animal-mediated pollination for crops that are directly consumed by humans. We found that pollinators are essential for 13 crops, production is highly pollinator dependent for 30, moderately for 27, slightly for 21, unimportant for 7, and is of unknown significance for the remaining 9. We further evaluated whether local and landscape-wide management for natural pollination services could help to sustain crop diversity and production. Case studies for nine crops on four continents revealed that agricultural intensification jeopardizes wild bee communities and their stabilizing effect on pollination services at the landscape scale.

Management conclusions and future directions—Pollinator management

Populations of wild pollinators can enhance production of some crops and are, in this way, an important natural resource; but populations of wild pollinators are frequently too sparse to adequately pollinate crops in agriculturally intensive environments. The landscape studies summarized in this review were all published during the last 5 years. Although more research is needed on a landscape scale, we are in a much better position today than we have been in the past to recommend landscape management practices to enhance wild pollinators. We need landscape management practices that boost native pollinator densities by increasing habitat-carrying capacity.

We suggest integrating the following general practices into management plans:

- i. increase nesting opportunities with the particular nesting needs of different pollinating species in mind and these may include gaps in surface vegetation or modifying cultivation practices, retaining neighbouring forest nesting sites for ground-nesting bees or leaving dead wood providing holes for cavity-nesting bees;
- ii. increase forage by providing suitable diverse floral resources in the local area and the broader landscape during the season of pollinator activity. Crop rotation using these flowering plants should be especially applied in intensified uniform agricultural landscapes and may also help to enhance other ecosystem services such as soil improvement, pest management by breaking cycles of damaging pests or erosion control;
- iii. enhance opportunities for colonization by connecting habitats with flowering strips and hedgerows around arable fields, small forest patches or even single trees as 'stepping stones', and (iv) reduce the risk of population crashes in the field and the surrounding habitats by foregoing use of broad-spectrum insecticides during bloom, especially those with systemic or micro-encapsulated formulations that can contaminate nectar and pollen.

Alexandra-Maria Klein, * Bernard E Vaissière, James H Cane, Ingolf Steffan-Dewenter, Saul A Cunningham, Claire Kremen, and Teja Tscharntke

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Proc Biol Sci. 2007 February 7; 274(1608): 303–313.
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What's the buzz, tell me what's a'happening?



'LOCAL FOOD SELF RELIANCE'

Want to break your dependence on the supermarket forever?
Its possible here and now to be 100% food self-reliant
at a bio-regional & local level!
Come and learn how...



Slideshow Presentation and 1 day Workshop
by: Robina McCurdy



SLIDE SHOW: Friday Sept 10 - 7:30 til 9:30pm
Entry: \$5-10 (income based sliding scale)

WORKSHOP: Sat Sept 11 - 9am til 5pm
\$45/\$60/\$85 - (income based sliding scale)
Registrations @ www.fern.org.au
More info email: ginnyholland@gmail.com
or PH: 0427644181

VENUE: For both events - **FERN**
Fremantle Environmental Resource Network
Corner of High St & Montreal St
Fremantle
<http://fern.org.au>



WORKSHOP AND SLIDESHOW TOPICS INCLUDE:

- key causes of global food insecurity and key principles underpinning local food security
- a range of successful international models of local food systems
- some innovative NZ initiatives of local food production, distribution and education
- bioregional-scale permaculture design approach to diversifying and sustaining organic food availability, which links individual properties, schools, neighbourhoods and rural areas.
- overview of Robina's participatory tools & strategies for creating resilient community food systems.



THE PRESENTER: For the past 20 years, Robina has worked internationally and nationally as a community development facilitator and Permaculture educator/designer, evolving her own methodology and accompanying resource materials - culminating in a manual for facilitators 'Grounding Vision: Empowering Culture'. Over the past few years, she has been integrating food security into all of her work, recognizing this as an urgent need of our times. Robina is a co-founder and resident of Tui Community in Golden Bay NZ and Trustee of the Institute of Earthcare Education Aotearoa (www.earthcare-education.org). She is a passionate organic-biodynamic gardener, and until recently was the co-ordinator of Victory Community Gardens in Nelson NZ.





Clinic address is

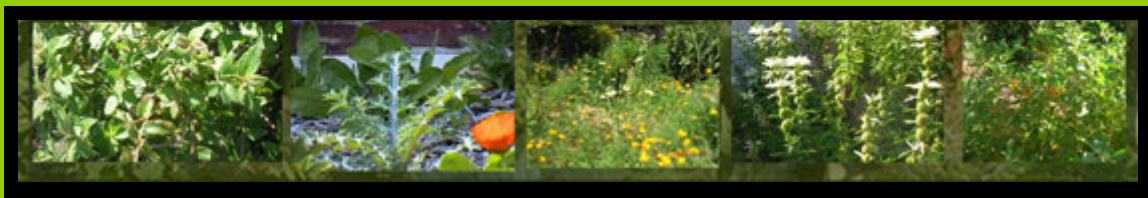
Magnolia cottage (at Verissima House)

16 Craig St.

Mundaring.

Clinic days are Tuesday, Thursday Saturday, sessions are by appointment only.

Mobile: 0412 180 796 - (NB - I don't get very good mobile reception where I am now residing so leave a message and I will get back to you as soon as I can)



It's Show Time

PAWA Committee members have been involved in creating a plan for the **permaculture garden** at the **Royal show**.

They are now looking for **volunteers** to assist with educating the public about the system over the 8 days of the show.

They are trying to organise a roster as soon as possible and are making an effort to integrate a variety of different levels of experience and knowledge into the program at all times. This means that they would love to have a representative of the HLLPG group on where ever possible throughout the 8 days.

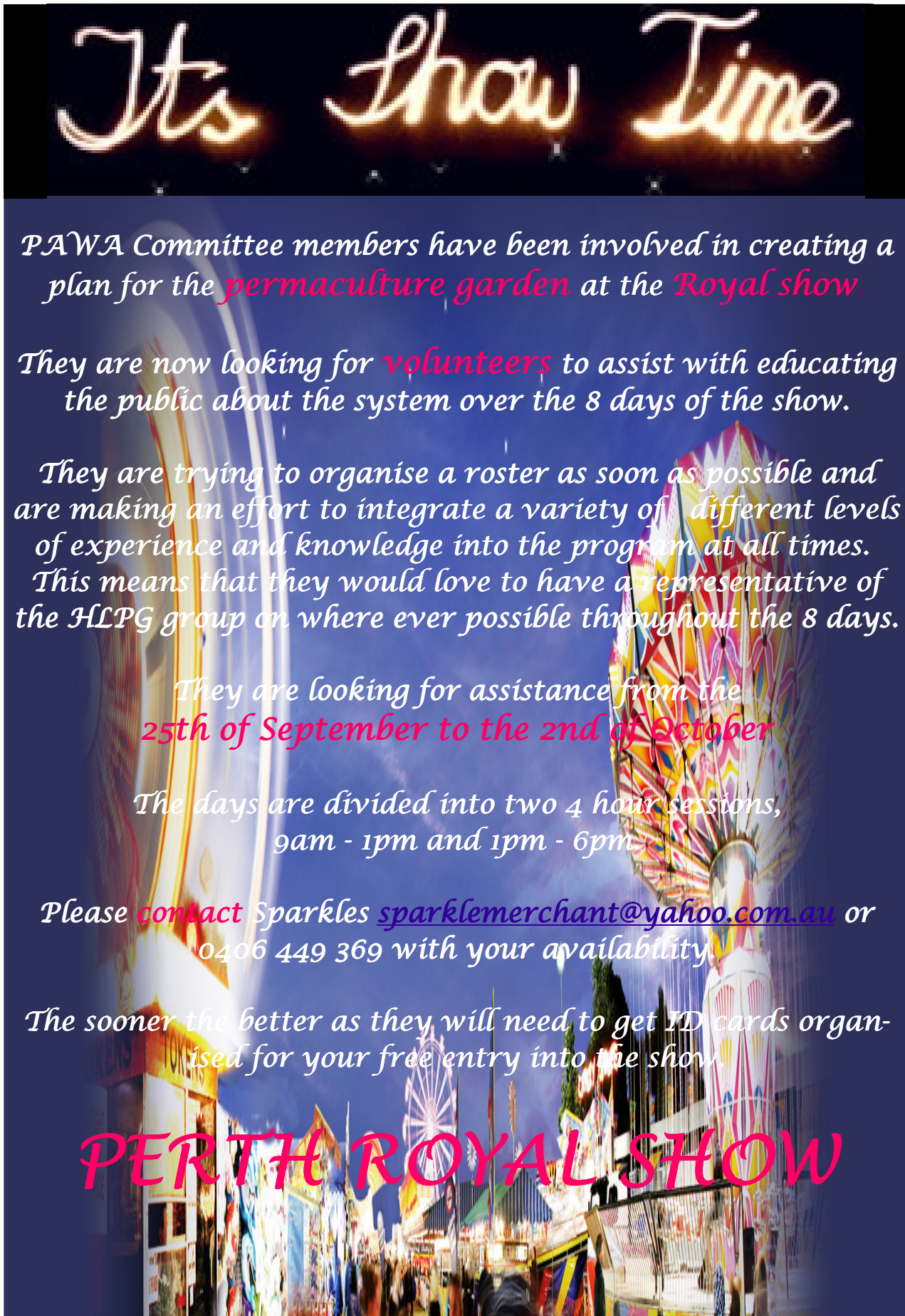
They are looking for assistance from the **25th of September to the 2nd of October**

The days are divided into two 4 hour sessions,
9am - 1pm and 1pm - 6pm

Please **contact** Sparkles sparklemerchant@yahoo.com.au or 0406 449 369 with your availability.

The sooner the better as they will need to get ID cards organised for your free entry into the show.

PERTH ROYAL SHOW



Living Smart

This is to give you some information for the upcoming Living Smart Community Course in Mundaring to aid your decision about joining us to help further your journey of sustainable living! And have some fun!

What are the details of your upcoming Mundaring Living Smart Community Course

The course is **entirely free** and we will supply fair-trade tea, coffee and hot chocolate in each session and some snacks. We encourage and invite you to bring a snack along for us to share!

It will run over seven weeks for two hours each session. Each week we cover 2 different topics, inviting guest speakers in; we have practical engaging demonstrations and presentations and share our stories!

The details are as follows:

- **Brown Park Recreational Centre**, Salisbury Road, Swanview
- Thursday evenings 7 - 9pm
- **9th Sept - 21st Oct**

WHAT IS THE LIVING SMART COMMUNITY COURSE?

The Living Smart Course is your opportunity to learn and explore different topics and issues on sustainable living that affect us in our daily lives. It also gives you the opportunity to **share your stories** and exchange ideas with like-minded people from your community.

We cover a wide range of topics on sustainable living such as:

- how to reduce your energy and water use through simple everyday actions,
- growing your own fruit and vegetables,
- what's happening in your community and how can you become a part of it!
- starting a worm farm / compost bin,
- the intricacies of recycling in your local area,
- how to deal with waste,
- the issues of peak oil and climate change,
- Nanna technology - what is it and why is it cool,
- cleaning your house with natural products instead of chemicals,
- keeping your body and mind fit and healthy,
- biodiversity in your neighbourhood

We will go on a **field trip** where we can set up a veggie patch in someone's house, visit a recycling centre or wildlife reserve, or something completely different - that's up to you!

We also give out useful and exciting prizes each session, to assist you on your sustainability journey! Watch out for the topped-up smart rider!

WE'RE INTERESTED, WHAT DO I DO NOW?

All we ask is for you to do is give us a call on 9216 8338 confirm your place and I will make sure to put your name on the list.

Also, if you want to bring a friend or 2, please let them know about it, the more the merrier we say!

These courses have a history of being over-subscribed so **please be quick** to make sure we can reserve your place.

WHO WILL BE HOSTING THE COURSE?

Myself, Lisa Brideson, will be facilitating the course with my colleague Ben Kent. Together we've notched up a number of years of learning and teaching others about sustainability ever since studying sustainable development at university.

We currently work with a great team implementing the community engagement component of the Perth Solar City project, also called Living Smart (your household might be participating). In short, Living Smart is about connecting with households right across Perth's Eastern Region and giving them ongoing support to reduce their water and energy use, waste disposal and car-based transport and save some money along the way.

The Living Smart Community Course is an integral component of the larger program and it is our privilege to be able to deliver it all over the Eastern Region, including the City of Mandaring.

Lisa Brideson and Ben Kent

Community Course Facilitators

Living Smart - Perth Solar City

ph: 9216 8338

email: lisa.brideson@transport.wa.gov.au

The logo for 'Living Smart' features the word 'Living' in a dark grey font and 'Smart' in a teal font. Both words have a small red dot above the letter 'i'.

Links

Biodynamic

Biodynamics2024—biodynamic farming and gardening in Australia
<http://biodynamics2024.com.au/>

Eden Valley Biodynamic Farm Dumbleyung in southern Western Australia
<http://www.edenvalleybiodynamic.com.au/>

Highvale Biodynamic Orchard – Pickering Brook
<http://www.highvale.com/home.html>

Bushtucker

Bush Food Network
<http://www.bushfood.net>

Bush Tucker Plants
<http://www.teachers.ash.org.au/bushtucker/>

Yelakitj Moort Nyungar Association
<http://www.nyungar.com.au/bushtucker.html>

Community Gardens

Australian City Farms and Community Gardens Network
<http://communitygarden.org.au/>

Glen Forrest Community Garden
<http://groups.google.com/group/glenforrestcomgarden?hl=en>

Growing Communities WA
<http://www.wacgn.asn.au/>

Compost and Soils

Eureka Organic Compost
Address: 4040 West Swan Rd, West Swan, WA, 6055
Phone number: (08) 92745526

Green Life Soil Co.
Family business promoting the practical use of Permaculture and Organic Gardening. They have developed several specialist soil mixes designed for improving Perth's impoverished soils

<http://www.greenlifesoil.com.au/index.htm>

178 Farrall Road, Midvale WA
Trading hours: 8:30 am – 5:00 pm. Closed Wednesday.
Ph: 9250 4575

From the Soil Up
<http://www.fromthesoilup.com.au/>



Herbs

Dipaunka Macrides—Living as a Herbalist

www.theherbalist.com.au

www.groveofpan.com.au

Mobile: 0412180796

Plants for a Future – edible, medicinal and useful plants for a healthier world

<http://www.pfaf.org/index.php>

The Amazon Plants – Tropical Plant Database

<http://www.rain-tree.com/plants.htm>

Nurseries

Tass1Trees – specialising in fruiting plants – Fruit Trees

<http://www.tass1trees.com.au/>

Zanthorrea Nursery

<http://www.zanthorrea.com/>

Organics

Aussie Organic Gardening – a gardening blog by Lyn Bagnall

<http://aussieorganicgardening.com/>

Mundaring Organic Growers

<http://www.mundaringorganicgrowers.net/>

The Green House Organic – provides organic seedlings

www.thegreenhouseorganic.com

The Organic Growers Association of WA – some good links and information

www.ogawa.org.au

Permaculture / Living simply

City Farm

www.cityfarmperth.org.au

Down to Earth—preparing for the future by relying on the past

“I want this blog to take you on a journey inside yourself to discover your passions, uncover your true potential and to help you be the authentic you. Mindless consumerism masks us all. It surrounds us with junk that turns us into curators of merchandise. Free yourself of all that ties you down, be that debt, clutter, stress, envy, or wanting too much. In a world filled with overindulgence, simplicity will liberate you. rhondahetzel@gmail.com”

<http://down---to---earth.blogspot.com/>

Fremantle Environmental Resources Network (FERN)

www.fern.org.au



Links

Hills Local Permaculture Group

<http://permaculturewest.org.au/hlpg>

Peacetree Permaculture & Edible Landscapes (PPAEL)

<http://www.peacetreepermaculture.com.au/>

Permablitz Melbourne

<http://www.permablitz.net/>

Permaculture Design – Pathways to Sustainable Living

<http://www.permaculturepathways.blogspot.com/>

Permaculture Power – spreading the permaculture word

<http://permaculturepower.wordpress.com/>

Permaculture Research Institute of Australia

www.permaculture.org.au

Dr Ross Mars - permaculture Designer, Teacher, Author, Consultant. **NEW**
Candlelight Farm and Candlelight Trust

www.cfpermaculture.com

www.rossmars.com

www.redplanetplants.com

Water Installations and Greywater Reuse Systems - greywater and rainwater tank installations, manufacturer and consultant.

www.waterinstallations.com

www.greywaterreuse.com.au

Sustainable Alternatives – Bernie and Rose Elsner's web site

www.sustainablealternatives.com.au

The Worm Shed – information about worms and worm farms

www.wormshed.com.au

Recycling

There is an email list for locals to pass on unwanted items or to find items all for free – Mundaring Shire Freecycle. You have to join the yahoo group to be able to post and receive notices.

<http://groups.yahoo.com/group/FreecycleMundaringShire/>

Seed Savers

Diggers Club—heritage seeds

www.diggers.com.au

Seed Savers' Network

<http://www.seedsavers.net/>

The Drylands Permaculture Nursery and Research Farm

<http://www.permaculturenursery.com.au/>

Yilgarn seeds in Geraldton—Part of Seed Savers Network

Suppliers

Greenway Enterprises

Horticultural, landscape and landcare tools and equipment

21 Tacoma Cct

Canning Vale WA 6155

(08) 6258 0333

Landmark – wide range of products, including multigrow

<http://www.landmark.com.au/>

32 Farrall Road, Midvale WA

Sustainability

Environment House—Bayswater

<http://environmenthouse.org.au/index.php>

Perth Solar City

www.perthsolarcity.com.au

Miscellaneous

A Frog Pond

<http://afrogpond.com/>

Eastern Metropolitan Regional Council

www/emrc.org.au

Ecological Agriculture Australia Association

<http://www.ecoag.org.au/www/>

Silver Tree Steiner School

http://silvertree.wa.edu.au/index.php?option=com_frontpage&Itemid=1

Slow Food - WA

<http://slowfoodperth.org.au>

Soul Tree Organic Store and Café

<http://www.thesoultree.com.au/index.html>

Shop 6, 3-5 Railway Parade

Glen Forrest

Swan Hills LETS System— Local Exchange Trading System

<http://swanhillslets.org/public/>



H LPG

Contact us

Silvia and Rosemary

Email:
silviarose88@yahoo.com.au

Phone:
(08) 9252 1237

Subscription to mailing list

If you wish to **subscribe** to the H LPG mailing list please send an email to us with the word "*subscribe to newsletter*" in the subject heading, and provide your full name and brief message.

If you wish to **be removed** from this email list, please send an email to us with "*unsubscribe*" in the subject heading

Permaculture West

Permaculture Association of Western Australia (PAWA)

<http://permaculturewest.org.au/home>

Hills Local Permaculture Group (H LPG)

The Hills Local Permaculture Group meets on the 3rd Saturday of the month, 9:30 for 10:00 start and finishing at 12:00.

The H LPG meets at the Silver Tree Steiner School in Parkerville.

Please bring a small plate of goodies for morning tea and a spare mug if you have one.

If you are interested in joining in, or have questions or suggestions, please contact Silvia or Rosemary by e-mail silviarose88@yahoo.com.au or phone (08) 9252 1237.

Web: <http://permaculturewest.org.au/hlpg>

The H LPG meets at the
Silver Tree Steiner School in Parkerville

The school is at **69 Beacon Road in Parkerville.**

If you are coming via **Great Eastern Highway** then turn into Seaborne Street (which becomes Byfield St and then Roland Rd).

If you are coming via **Toodyay Road** then turn into Roland Road.

