# Tool Topics.

We are looking for someone with drafting or CAD experience to help draw up this and other designs to help with the production of equipment.


***Another of Euans bushcare inventions***

If you can help please contact Euan.

***To hear the story and see the results when the Brothers Grimm get going in the bush at Echo Valley South Park on Monday mornings check out the Landcare web site-***
http://landcareqld.placestories.com/story?id=2700122&p=2700024
***There are three stories about FEP in the "Tools N More Tools" section.***

***Can you identify what equipment this wheel was previously attached to?***

*A mystery wheel from the gully at EVSP*

***Euan (Ian) McLean (FEP)***
***4630 1535***

# Parkcare Groups.

***Parkcare groups*** are volunteers doing rehabilitation work on these Sundays each month.

Would you like to get involved?

***Nielsen Park (1st Sunday)***
***Prince Henry Heights (3rd Sunday)***
***Waterbird Habitat (4th Sunday)***

### *Nielsen Park*

This park is located at the eastern end of Tarlington Street or can be accessed via Rowbotham Street and/or Nielsen Court.

### *Prince Henry Heights*

This group is currently working along Prince Henry Drive.

### *The Waterbird Habitat*

This group is active on the 4th Sunday each month on the main land and the islands.

***Rehabilitation may include weed removal, propagating and planting native species as well as monitoring plants and wildlife.***

For more information on parkcare groups, please contact –

***Kristie Jenkinson***
**4688 6514 or 0408 714 215**
kristie.jenkinson@toowoombaRC.qld.gov.au

# FEP News.

### *FEP Volunteers active at EVSP*

Monday group work each week at Echo Valley South Park 9-12 at the southern end on Ramsay Street, Toowoomba (next to Echo Valley Race Track).

More volunteers are always welcome to join the crew taking on and winning the battle against our foe, the privet. For more information contact Ray on 4635 6920.

***Friends of the Escarpment Parks***
**Toowoomba Inc.**

***FEP Membership is only $5 per year***

*Would you like to support FEP? Membership is only $5 per year*

Friends of the Escarpment Parks TOOWOOMBA Inc.

TOOWOOMBA REGIONAL COUNCIL

*FEP, Caring for Toowoomba's Bushlands*

The
# Escarpment Park Friend
**Nov – Dec 2009**

*Hugh Krenske 4635 1758*
info@fep.org.au
**www.fep.org.au**

## In this issue-



## EVSP Clean Up.

Recently we have been having a big clean up of dumped rubbish from the creek valleys in Echo Valley South Park (EVSP).

We found heaps of interesting things including the undercarriage for a horse drawn cart, decorative cast iron stove panels, a wheel and many more odds and ends.

*Just some of the metal items retrieved from the gully at EVSP*

If you would like to check out or even claim some of the items for reuse it would help to minimise the heap that we will eventually send to the scrap metal recyclers.

We usually have volunteers in the park from 9:30 till noon Monday and Saturday mornings each week. You are welcome to come along and join the fun.

***Greg Lukes** (FEP)*

## Savings Option.

**HERITAGE**
**COMMUNITY SAVER PROGRAM**

***As part of its commitment to the community, Heritage Building Society has introduced a new scheme to assist local community groups to raise money.***

Friends of the Escarpment Parks has registered with this scheme making it possible for members to open a personal Community Savers Account that will not only give the account holder a high rate of interest but Heritage will also anonymously transfer a further 1% interest to your ***chosen community group***. In this way members can benefit both themselves and their chosen community group.

A community account can be opened: -
On line through www.heritageonline.com.au
Through the Heritage On-line internet banking or at your local branch.

***Friends of the Escarpment Parks Community Group Identification No is 1719 and must be quoted when opening an account.***

Interest rates at September 2009 are:-

| | |
|---|---|
| $1-$249,999 | 2.40% p.a. |
| $250000-$749,000 | 3.75% p.a. |
| $750,000 + | 4.00% p.a. |

calculated daily and paid monthly

The Committee cordially invite you to consider helping yourself and helping the association by opening your own personal Community Savers Account with the Heritage Building Society.

***Ray Addison***
***(FEP Treasurer)***

# Earth Watch.

## *Soil Biota (Soil Life) (Part 1)*

***Soil life or soil biota is a collective term for all the organisms living within the soil.***

In a balanced soil, plants grow in an active and vibrant environment. The mineral content of the soil and its physical structure are important for their well-being, but it is the life in the earth that powers its cycles and provides its fertility. Without the activities of soil organisms, organic materials would accumulate and litter the soil surface, and there would be no food for plants.

The soil biota includes:

**Megafauna:** size range 20 mm upwards, e.g. rodents, wombats, etc.

**Macrofauna:** size range 2-20 mm, e.g. woodlice, earthworms, beetles, centipedes, slugs, snails, ants, harvestmen.

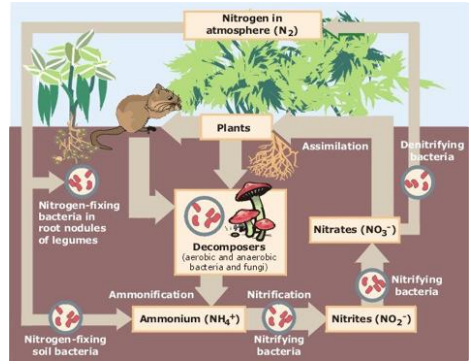
Mesofauna: size range 100 micrometre-2 mm, e.g. tardigrades, mites and springtails.

**Microfauna and Microflora:** size range 1-100 micrometres, e.g. yeasts, bacteria (commonly actinobacteria), fungi, protozoa, roundworms, and rotifers.

Of these, bacteria and fungi play key roles in maintaining a healthy soil. They act as decomposers that break down organic materials to produce detritus and other breakdown products. Soil detritivores, like earthworms, ingest detritus and decompose it. Saprotrophs, well represented by fungi and bacteria, extract soluble nutrients from detritus.

***Bacteria***

Bacteria are single-celled organisms, and are the most numerous denizens of the soil, with populations ranging from 100 million to 3 billion in a gram. They are capable of very rapid reproduction by binary fission (dividing into two) in favourable conditions. One bacterium is capable of producing 16 million more in just 24 hours. Most soil bacteria live in close proximity to plant roots and are often referred to as rhizobacteria. Bacteria live in soil water, including the film of moisture surrounding soil particles, and some are able to swim by means of flagella. The majority of the beneficial soil-dwelling bacteria need oxygen (and are thus termed aerobic bacteria), whilst those that do not require air are referred to as anaerobic, and tend to cause putrefaction of dead organic matter. Aerobic bacteria are most active in a soil that is moist (but not saturated, as this will deprive aerobic bacteria of the air that they require), and neutral soil pH, and where there is plenty of food (carbohydrates and micronutrients from organic matter) available. Hostile conditions will not completely kill bacteria; rather, the bacteria will stop growing and get into a dormant stage, and those individuals with pro-adaptive mutations may compete better in the new conditions. Gram positive bacteria produce spores in order to wait for more favourable circumstances, and Gram negative bacteria gets into a "nonculturable" stage.




From an environmental point of view, the important roles that bacteria play are:

***Nitrification***
***Nitrogen fixation***
***Denitrification***
***Actinobacteria***

## *From Wikipedia*

http://en.wikipedia.org/wiki/Soil_life



*Further details about bacteria and fungi roles will be explored in another newsletter.*

Species Watch.

## Look at Lichens (Part 3)

### REPRODUCTION

Every lichen is an obligate symbiosis between both a fungal and an algal partner, and both have to be present together for the organism to develop and function. Neither the fungus not the alga can form an effective plant body on its own. This of course poses problems for lichens when they reproduce, since both of the symbionts must either find each other after dispersal or be present together in the reproductive structure. Given the widespread and often dense nature of lichens, they have obviously found effective ways to solve this dilemma.

If you look closely at most lichens you will see that the older central part of the thallus (the plant body) produces shallow cups, elongate slits or coloured patches known as apothecia, or rarely small toadstools which arise from the centre of the thallus. These are the fruiting body of the fungal partner but not of the alga. Apothecia are often distinctively coloured black, brown, orange or red (see illustration below), and produce minute single to multiple celled fungal ascospores which are dispersed by the wind and must eventually land on plants or the ground.

***Apothecia***

Here they must sometimes germinate, but unless they immediately meet up with the appropriate algal partner nothing much is going to happen. The chance germination of the fungal spore in the presence of the right algal partner must occasionally happen, and since the fungal spore is sexually produced this presumably gives the lichen the chance to evolve. However the chances of a fungal spore germinating in the presence of the right algal partner are thought to be remote, and this is not a significant way for lichens to reproduce. Some lichens seem to have evolved to manage without apothecia altogether. Apothecia are produced throughout the year, and are very useful in identifying lichens.

Lichens have evolved three very effective methods of vegetative reproduction in which both the fungal and algal partners are dispersed together. The simplest of these is fragmentation. Lichens growing on the surface of soil, rocks or trees are liable to be trodden upon by animals and birds or shaken by the wind and rain so that parts are sometimes broken off. If the fragments fall on the right substrate they may become attached and grow into new plants. Fragmentation is slow, clumsy and dependent on chance, only produces a few new individuals, and is probably not a major method of lichenous reproduction. Of much greater value to most lichens is the production of soredia and isidia.

Soredia are very small powdery grey-green granules which are produced by many lichens on specialised structures (soralia) on the upper surfaces or edges of their thalli, but the soredia are too small to be seen with the naked eye. The soralia can however usually be seen with the naked eye as small powdery lines or patches. Each soredium is a tiny ball of entwined algal cells and fungal threads, and many millions are produced throughout the year.

Isidia are similar but rather larger often peg-like structures (up to 1 mm long) which grow on the upper surfaces of lichen thalli, where they can often be seen by the naked eye. They too consist of algal cells tightly wrapped up in a weft of fungal threads. Both structures are easily detached from the lichen and are spread by the wind, on the feet of birds and possums, and on the bodies and in the faeces of crawling insects and mites, as well as being splashed about and washed down trees and rocks by rain.

***Lichen with a layer of isidia***

Both soredia and isidia form an important part of the diet of some mites and smaller insects and most must perish, but sufficient survive and germinate to freely reproduce most lichens.

***John Swarbrick (FEP)***