Issue 16 - June 2011

Wombat Forestcare Newsletter

The Wombat Forest is living up to its reputation as a fungi 'hot spot'. John Walter, on his first outing with our group, found a rarely seen sarcodon fungus and you can read about this exciting discovery in our lead article. Take a walk anywhere in the forest and you will find an astonishing array of fungi species. So don't miss out on what the wonderful Wombat has to offer this winter... Gayle Osborne

The Wombat has teeth

By John Walter

Who could have guessed that my first activity with Wombat Forestcare would be such an interesting and exciting day? After quietly observing the group's activities via the website and newsletters, I finally decided to take the plunge and become an active member. A walk in the forest near Lyonville seemed like an ideal opportunity to meet some other members and get to know the group, and, of course I expected we would find an uncommon species of fungi to round off the day.

I have a strong interest in all aspects of natural history with an initial focus on flora, but after the stunning 2010 season I became enthralled with the world of fungi. Where better to explore the realm of this magical kingdom than the Wombat Forest where you can find a myriad of designs, shapes and colours to satisfy your thirst for the beauty of nature.

The walk started well with the flora and the sighting of a rough coprosma (*Coprosma hirtella*) which I had not seen before, and then the list of fungi species began to grow. Boletes with their pores instead of gills made an appearance along with several brightly coloured Russulas followed by a group of *Hebeloma victoriense* with their pale pink gills, and before I knew it, I was surrounded by Peppery Milk Caps (*Lactarius piperatus*) and masses of big fat Skirted Cortinars (*Cortinarius australiensis*). By now, I had at least twelve sets of eyes on the lookout for fungi and as the number of species quickly grew I was struggling to keep up with the camera.

After a short lull, I spotted a dark brown cap that

Sarcodon sp. showing its teeth - photography © John Walter

I knew immediately was a species I had never seen before. As I unpacked the camera while standing over the mushroom to protect from being accidentally trodden on, another walker passed me a piece of

Sarcodon sp. in situ - photography © John Walter

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mushroom broken from another specimen by passing wildlife, and it had TEETH. A quick look confirmed it was the same species as that I was standing over, and then I knew that my feet were protecting something very unusual indeed.

Only a few fungus species have teeth, and even less have a regular mushroom shape. The Hydnellum and Phellodon species have a leathery appearance which eliminated them from the list of possibilities. The Hedgehog fungus is reasonably common in the Wombat and other forests I visit to the north, but it is small and dainty looking when compared to this 200mm diameter chunky brown monster. The 'teeth' or 'spines' as they are also known, replace the gills on the mushroom and produce the spores.

When I returned home later that day, I immediately hit the books to try and identify the new 'find'. There are a number of field guides available but Bruce Fuhrer's *A field guide to Australian fungi* is my favourite. Like all field guides however, Fuhrer was only able to include the most common species, although he did manage to include some 500 of them. The Hedgehog, *Hydnam repandum* is there and a smaller rarity *Beenakia dacostae* plus a Sarcodon, *Sarcodon fuligineoviolaceus* that is associated with the Beech forests. Our Wombat discovery was clearly not one of these.

A look into the *Fungi of Australia* publications showed no other references for Beenakia but did include several Hydnam species. After several hours I concluded it was not a Hydnam species and moved on to the Sarcodons. A visit to the Virtual Herbarium website confirmed two Sarcodons had been collected in Victoria and only fourteen collections had been made for Australia, but it also implied species other than that seen by Fuhrer were waiting discovery. Next I visited internet images and here I found a number of European and North American Sarcodon species, with *Sarcodon leucopos* looking very similar to our discovery. Looks can be deceiving with fungi but by midnight I was satisfied we had discovered a patch of Sarcodons, with the exact species name to be determined.

Two days later, Dr. Tom May, Senior Mycologist at the National Herbarium of Victoria, confirmed the find was indeed a Sarcodon and arrangements were underway for a specimen to go to the Herbarium. Several more specimens were located nearby the following weekend and I searched for and found a small population at another site several kilometres away the week after that.

Hedgehog fungi (*Hydnum repandum)*
photography © John Walter

The Sarcodon has a strong, almost overpowering mushroom smell and many specimens showed signs of being eaten, probably by a Swamp Wallaby or Wombat. Their dark brown colouring makes them difficult to spot in the similarly coloured leaf litter and they have a habit of appearing beneath small prickly shrubs like the Gorse Bitter-pea (*Daviesia ulicifolia*) or sticks and other debris.

That simple walk in the forest has now led me to add over twenty new fungi species to my list, and the real fungi season for 2011 is still ahead of me. I love the Wombat, and yes, it certainly does have teeth. ■

Phellodon niger - photography © John Walter

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VEAC - Remnant Native Vegetation Final Report

By Gayle Osborne

Briefly the Victorian Environment Assessment Council (VEAC) is an independent body which carries out environmental investigations and makes recommendations to the State Government. An article about VEAC can be found in our November 2009 Newsletter. A previous investigation led to the creation of a number of National Parks along the Murray River.

The Remnant Native Vegetation Investigation report was released in April. This investigation was established to identify and evaluate areas of remnant native vegetation on public land and assess their contribution to biodiversity and their potential to achieve improved ecological connectivity.

This enormous task covered all of Victoria. There were many thousand small parcels of public land, roadsides, unused road reserves and stream sides to consider. Assessing all of these would have been impossible. In order to prioritise, the Council evaluated all bioregions and selected those where the clearing of original vegetation has been the most extensive. They have recommended six of these for further investigations.

Our bioregion, the Central Victorian Uplands (CVU), falls into the section on bioregional priorities. The report states that the bioregion "is notable for the generally poor site condition of its remnant native vegetation". This has been caused by historic gold mining, "heavy farming use" and a "long period of wood product harvesting".

The report states that due to the poor condition of vegetation in the CVU there is "greater need for extra management effort to arrest further degradation".

The report also highlights that the percentage of original native vegetation in protected reserves in the CVU is well below the State average. This means that the tenure of much of the CVU public land is State Forest rather than State or National Parks, despite this bioregion containing a moderate level of public land.

Recommendation R12 proposes that the Government initiate investigations of public land use in three bioregions. The Central Victorian Uplands is the third bioregion on this list.

RECOMMENDATION

Protected area system

R12

Government initiate investigations of public land use in the following bioregions (in descending order of priority) for, amongst other things, assessment against the need to provide for the creation and preservation of a comprehensive, adequate and representative system of protected areas:

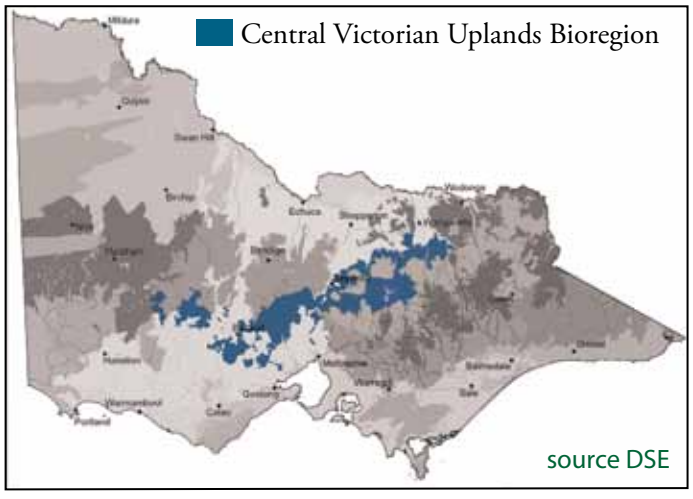
a) Wimmera (south), Dundas Tablelands and Glenelg Plain
b) Gippsland Plain and Strzelecki Ranges
c) Central Victorian Uplands.

Should the Government accept recommendation R12 the investigation would include the status of the Wombat Forest, Mount Cole and part of the Pyrenees Ranges. This is exactly the sort of process we have been requesting for the Wombat. However, first the Government needs to agree to this and then there will be the very long wait for the investigation as this bioregion is third on the list.

There are twenty detailed recommendations in the report, far too many to discuss in detail. A long overdue recommendation is for the fencing of public stream frontages and that they be managed primarily for biodiversity and water quality is important.

Much of the native vegetation of regional significance occurs on rail and road reserves (both used and unused) and there are recommendations about management and inventories.

The report also identified that 50.2 percent of



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remnant vegetation occurs on private land and made recommendations regarding supporting programs to assist contribution to landscape connectivity.

We are used to VEAC reports that make very specific recommendations about change of tenure to National Parks and other conservation reserves. This report, however, identifies how to proceed and how to integrate biodiversity actions from a local to a statewide level.

In the Forward to the report, Duncan Malcolm, Chairperson says that despite strategies, government programs and thousands of hours of voluntary work, "the substantial majority of Victoria's biodiversity that occurs in fragmented landscapes continues to decline".

This report was tabled in the Victorian Parliament on the 24 May and the Government has six months to formally respond.

It is to be hoped that the State Government will take this report seriously and endorse and properly fund the recommendations. Time is running out. ■

www.veac.vic.gov.au

In Search of the source of the Coliban

By Alison Pouliot

The source of a river is where it all begins. The journey. The movement of water, of energy, of life, across landscapes. It may also be a personal journey, of wonderment and intrigue, into uncharted territory. But have you ever actually tried to locate one of the Wombat's six river sources? River sources are often both elusive and transient, especially in a land with such intermittent flows. Contrary to the linear geographic feature with a defined source and mouth on your map, reality usually presents rather a different scenario. River sources have been the desired destination of endless pilgrimages. They've been mythologised by numerous cultures across the centuries. They are well-springs, origins, symbolic of beginnings, of new life, and hold a spiritual significance for many. Writers and film makers have romanticised great river journeys but how many of them actually located the source? River sources are usually found in some of the wildest and highest quality habitats of a river's journey. Here you'll often find wonderlands of exquisite beauty and havens for biodiversity. This certainly holds true for those rising in the Wombat, including the Coliban.

The swampy origins of the Coliban River - photography © Alison Pouliot

It's one of those perfectly still and melancholic autumn afternoons when I set off in search of the Coliban River's source. It almost feels a little like stepping into a Wright or MacKellar poem. In previous newsletters we've explored the Wombat's southward flowing rivers and now we're turning the spotlight on those that flow to the north. I'm armed with a swag of maps, compass, GPS and my head brimming with local, albeit largely contradictory, advice. I can't help wondering whether a pocketful of rice might be more useful. It sounds like it should be easy to locate the highest point in the catchment and find the damp bit of earth where it all begins. Or perhaps an upwelling of groundwater. A spring. Some obvious sign of a 'beginning'.

You'd think it would just be a matter of locating a river channel and simply following it upstream until it vanished. Hmmm nice theory. And Google Earth doesn't provide too many clues either. I slide the map

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into my backpack and decide to just follow my nose. Part of the difficulty is that elevation changes are subtle. The denser the vegetation the harder it is to detect these changes. And of course there is no defined track or convenient sign with 'Coliban starts here'. It's solid bush - tough going through surprisingly rough terrain that involves climbing, crawling and extracting large hungry leeches from places you'd rather they weren't. This is not the first time I've sought a river's source and somehow it doesn't seem to become any easier.

Most rivers begin their life high up in the world's mountains. Following a snowfall or downpour, some moisture soaks into the ground and the rest gives way to the force of gravity, trickling downhill as surface waters. But if it's not raining or hasn't for awhile, things can be trickier. The source of a river may comprise a damp swampy area fed from either an underground spring or from runoff. Small braids or headstreams then gradually come together into a single channel that grows as it heads downhill.

My boots are getting wetter and I find myself in a swamp that may just well be the source of the Coliban River. I'm somewhere in the Wombat Forest not far from the township of Lyonville at just under 700 metres altitude. The river's journey begins in lovely tall open forests of stringybark, manna gum, messmate, and narrow-leaved peppermint. A little further downstream it takes a tumble and plummets over the spectacular columnar basalt of Trentham Falls (reputedly the largest single-drop falls in Victoria). These impressive basalt columns formed as a result of rapidly cooling lava some five million years ago. The falls are the perfect spot to stop awhile and soak in the tranquility and majesty of the Wombat. You're likely to spot swallows darting under the falls and perhaps a wallaby bounding through the undergrowth. At night the calls of Tawny Frogmouths echo across the valley. And if you're also here in autumn keep an eye out for the beefsteak fungus *(Fistulina hepatica)* growing at the base of eucalypts and once a food source of Aboriginal people.

The river's journey has hardly begun before its flows are captured by the Upper Coliban, Lauriston and Malmsbury reservoirs respectively. Along its course the Coliban meets with the Myrtle and Kangaroo Creeks as well as the Little Coliban River which all contribute to its flow. Its 90km journey concludes at the confluence with the Campaspe River at Lake Eppalock.

The discovery of gold in the 1850's spelt the end of the Coliban's natural flow regime. The river's course has since been regulated through a series of channels that

The Coliban downstream of Trentham Falls.
photography © Alison Pouliot

supply water to major towns including Castlemaine and Bendigo. But despite these modifications the Coliban River still supports a diverse biota, especially in the upper reaches in the Wombat. This includes eight species of native fish, four of which are endangered. The critically endangered trout cod *(Maccullochella macquariensis)* has also been sighted. Various efforts are underway to link patches of remnant native vegetation within the Coliban's catchment, restore riparian vegetation and improve stock management.

Tracking the source of a river will take you on a journey in more ways than one. If you don't find the source, the hunt is still worthwhile, as you'll always discover something, even if it's not what you'd expected. The reality is that a river's source is not static. It depends on when and where rain falls. Or if indeed it does fall at all. But an afternoon's adventure in some of the Wombat's most intact habitat promises to be a rewarding and enchanting journey. And if by chance you should get lost, just follow the trail of rice grains…■ **www.alisonpouliot.com**

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Biomass/Bioenergy

By Gayle Osborne

The recent interest in biomass and the possibility of using "forest waste" to create power led me to have a closer look. The suggestion that VicForests may seek to sell woodchip from State Forests as biomass caused alarm. Is a proposed biomass generator at the Eden chip mill a forerunner of similar generators throughout the state?

So what is biomass and what is bioenergy? Why is it a component of sustainable energy production in Scandinavian countries?

Biomass is plant and animal material of recent biological origin. Harvesting biomass such as crops, trees or dung and using it to make energy in the form of heat or electricity is bioenergy.

Biomass can come from conventional forestry, short rotation forestry, agricultural crops and residue, oil bearing plants, municipal solid waste and industrial waste.

It is considered carbon neutral as the carbon dioxide which was absorbed while the plant was growing is released into the air when the fuel is created as opposed to fossil fuels which release carbon already stored in the earth. Therefore it is a renewable energy.

Biomass can be used to create energy by
1. Combustion which produces heat and steam
2. Gasification which produces gas
3. Pyrolysis, thermal decomposition in the absence of oxygen produces liquid fuel
4. Biochemical which produces methane and liquid fuel

Our use of firewood at a domestic scale is a use of biomass to create heat.

In Scandinavia, plantation waste and thinnings are used for heating, particularly in towns which are connected to central boilers and were previously run on oil. Material is often compressed into pellets or briquettes to create high combustion efficiency and reduce emissions. Care is also taken not to remove excessive nitrogen from the soil by harvesting after the deciduous trees have dropped their leaves.

There are many examples, worldwide, of successful uses of local waste to create energy. Environmentally, these are most impressive when the fuel does not need to be transported large distances. A large walnut business in North America uses the shells to produce gas which goes towards running the plant.

Early stages of farm forestry © Angela Halpin

Biochar, a by-product from this gasification process is 47% carbon and is added to the compost of their organic farm.

The Department of Primary Industries (DPI) Victoria is promoting a bioenergy industry to create a market for the farm forestry industry. Farm forestry involves farmers using commercial tree growing as a way of increasing agricultural productivity and encouraging sustainable natural resource management. This is to be encouraged as this industry is opposed to broad acre, monoculture plantations and has the potential in the future to ease pressure on our native forests.

On the other hand, in North America there is a move to use forest thinnings as biomass to reduce the severity of wild fires. There is the suggestion that this could be effective in our forests. Liz Hamilton, DPI, Senior Bioenergy Officer, states that "In Australia, active fuel reduction tools other than prescribed burning are rarely used. In some regions and locations of Australia, and under certain conditions, methods such as mechanical biomass removal and utilisation for bioenergy could well lead to a reduction in the costs and risks associated with undertaking fuel reduction burns as well as having numerous other social, economic and environmental benefits."

We should take care that any proposals for a bioenergy industry are not reliant on timber from State Forests. We have seen the impacts of the woodchip industry on our forests and need to be aware that a similar market for pellets could be camouflaged as a measure to reduce wild fires.

What would be removed from the forest to decrease fire intensity? Fuel reduction burning aims to reduce the fine, dry fuels. This would not be collected as a biomass. Much of the Wombat Forest is young, heavily stocked regrowth which many believe should be thinned, but it would have a low calorific value and high transportation costs.

Woodchip was described as forest waste; however the reality was that clean logs were required to supply this market. The value of our forests lies in their contribution as carbon sinks and biodiversity refuges. ■

References:

Developments in the use of woody biomass for bioenergy in Canada and Western USA by Liz Hamilton

Energy from Wood – Policies, logistics and economics of bioenergy in Nordic countries by Andrew Lang

NUFG Submission to Forest Industry Inquiry
www.aboutbioenergy.info
www.ieabioenergy.com

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Stream Morphology and the Riparian Zone

By Miriam Rotstein

Creeks and lakes are places we often associate with calm and tranquillity, conjuring images of water reflecting trees and sky, perhaps with some reeds growing at the edges. Yet these environments are complex habitat for many kinds of creatures with many ecological processes occurring here. But are you familiar with the anatomy of a waterway?

Waterways have variations in path (meandering), depth, current strength and of course there are usually places for aquatic fauna to feed, breed, rest and hide in.

The Werribee River, with a riffle section visible photography © Gayle Osborne

Creeks and rivers have three main sections to them: riffles, runs and pools. Pools are the deeper areas, riffles are the "rapids," where turbulence is created by shallow rocky sections or fallen trees, and the runs are the bits in between that connect them.

The turbulence of the riffles mixes air into the water, which increases the "dissolved oxygen" content that aquatic fauna breathe. Sensitive species of aquatic macroinvertebrates ("waterbugs") often prefer this higher dissolved oxygen environment, but they have to be equipped against the strong current: for example some types of mayfly nymphs *(Leptophlebids)* have flattened bodies, and others *(Coloburiscids)* have spines to hold on between rocks. Aquatic vegetation here is often limited to algae, with macroinvertebrates living between and under rocks, amongst vegetation, leafy organic matter and woody debris.

Pools vary in size, depending on the size of the waterway. They are most obvious when drought or seasonal drying reduces the remaining water to pools. The current is less strong here, allowing organic matter or silt to settle out from the water. This organic matter is a food source and provides energy and nutrients to the food web of the pool. This is an example of an ecosystem process.

Aquatic vegetation often grows here, especially at the edges where the current is not so strong and where light within the water column is available (the "littoral zone"). This creates a microhabitat suitable for tadpoles, very young fish and our macroinvertebrate friends. Alternative microhabitats that are also likely to be present include organic matter deposits and woody debris.

Macroinvertebrates living in this area don't need to cling to the stream bed, so they are often good swimmers, enabling them to travel further in search of food or better habitat. When a river dries up pools become a refuge for aquatic animals. However some macroinvertebrates have specialised life cycles to cope, laying eggs that can last for many years.

So far we have looked just at the waterway but it exists within a larger landscape. The "riparian zone" is a term you may have heard of before, it means the banks and any further section of land that influences or is influenced by the stream or body of water; a floodplain is one example. "Riparian vegetation" is the vegetation growing in the riparian zone.

Riparian vegetation plays a very important role in protecting the banks from erosion and in filtering the run-off that flows into the waterway. It provides shade to the stream, habitat for many animals including frogs and birds, and organic matter which is a food source for the aquatic environment.

In the Wombat Forest the main threats to riparian vegetation and waterways include weed infestation, fuel reduction burns that are improperly carried out, and damage from illegal off-road activities of trail bike riders and four-wheel drive vehicles.

Vehicles and erosion can introduce significant amounts of silt, and the water will become visibly less clear. This is called "turbidity." While it is "normal" for larger lowland rivers to have a reasonably high degree of turbidity (e.g. the Yarra) upland streams such as we have in the Wombat Forest should be quite clear.

Excess silt can have detrimental effects on waterways, such as smothering or reducing the photosynthesis of aquatic plants; smothering the eggs of fish and macroinvertebrates; impairing or clogging the gills of fish; filling up gaps between gravel in the stream bed (which is a type of habitat); increasing the temperature of the stream (more of the sun's heat is absorbed by cloudy water) which in turn decreases the dissolved oxygen that aquatic fauna relies on, in turn downgrading the habitat.

Therefore it is important that the waterways of the Wombat Forest are protected from turbidity and damage to riparian areas. The illegal off-road activities of trail bike riders and four-wheel drive vehicles can cause great harm to the ecology of our streams and requires greater policing.

But now grab your coat and head out for another look at your favourite creek spot, and take a new look at the flow and the riparian vegetation... ■

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Festival of Biodiversity 21 May 2011

By Gayle Osborne

This year is the International Year of Forests and it seemed appropriate given our relationship with the Wombat Forest to celebrate International Day of Biodiversity with a 'Festival of Biodiversity'. The decision to organise this event was only taken two months before and many times we felt we had not allowed enough time for the task.

WFC's Biodiversity Festival at Trentham - photography © Angela Halpin

I think we were all surprised by the success of this day. The sun shone, the venue was great and the stalls were packed with important information. Our display boards featured wonderful photographs of the flora, fauna and fungi of the Wombat Forest.

Eight organisations participated providing relevant information to our visitors; Trentham Landcare, Land for Wildlife, Hepburn Wildlife Shelter, The Wilderness Society, Seeding Victoria, Trust for Nature, the Trentham Community Garden and Central Victoria Solar Cities.

The festival was opened by Cr Sebastian Klein who, in a moving speech, noted that it is "a challenging time for our planet" and described the "need to teach people to love the world we live in."

Mini talks were held throughout the day with the Land for Wildlife talk being so successful that it ran well over time. Footage from our night vision camera and a visual display featuring Alison Pouliot's fungi images kept visitors enthralled. Frog and bird calls played in the background.

Many children visited and the highlight of the day was the 'Water Bug' display. With equipment leant to us by North Central CMA and a young scientist, Miriam Rotstein from our group, children were able to view the macroinvertebrates that inhabit the healthy streams and rivers of our forest.

We estimate that about 200 people visited the festival and we were pleased to see that most visitors spent time with the stallholders as well as reading the information on the display boards.

This event highlights the commitment and range of skills that our members bring to the group. We particularly wish to acknowledge Juliet Summers whose vision made this festival possible. The success of this day was deeply satisfying to all of us.

Our group was the only organisation in Australia to register its event on the United Nations' website to mark the International Day of Biodiversity. Thirty-six people have already visited our website from this link.

Interestingly, large numbers of Australian groups and cities have registered their events with the UN for World Environment Day two weeks later. ■

Wombat Forestcare (Inc.) Membership

Wombat Forestcare Inc. is dedicated to preserving the biodiversity and amenity of the Wombat State Forest by utilising the skills and resources of the community. It will monitor activities affecting the forest and will work with government departments and their officers to improve or correct procedures which may impact on the forest and waterways. By becoming a member you will have input into our activities and projects, and give support to caring for our forests.
For memberships and further information contact Gayle Osborne, phone 03 5348 7558 or email info@wombatforestcare.org.au
Membership fees are only $10 single and $15 family.