Issue 32 - June 2015

Wombat Forestcare Newsletter

Welcome to our winter edition. The array of fungi in the Wombat this year is amazing, possibly one of our better seasons. So many different colours, shapes and sizes. Winter is also time for some Greenhood orchid species. Stand still and look down carefully, there is much that is easy to miss. See you out there!
Gayle Osborne (editor) and **Angela Halpin** (design)

Where Beauty Meets Bizarre - A Fungal Foray in the Wombat

Words and images by Alison Pouliot

It's winter and the Wombat's fungi welcome the rain and and cooling soils. A wander through the forest finds them emerging through leaf litter, crevices of logs, mossy depressions and even springing forth from wallaby scats.

The fungal kingdom epitomises the merging of the beautiful and the bizarre, capturing the imaginations of those who stumble upon them on the forest floor. Some adopt familiar cap-and-stalk style configuration while others appear in more curious forms shaped like brains, antlers, goblets, phalluses or lattice balls. How did such eccentric forms come to be? All are driven by the one imperative – to produce and disperse spores. And nature, it seems, has a quirky sense of humour. Fungi have been around since the Devonian (380-420mya) and have evidently become very proficient at evolving ingenious forms and strategies to maximise spore distribution and enable their continued existence.

Despite their ubiquity and diversity, fungi challenge our notions of the categorising of life. Not only is their taxonomy in a state of flux, but they also occupy a place deeply embedded in myth and uncertainty. Their indeterminacy – being neither plant nor animal – upsets this Linnean dichotomising of organisms that still persists today despite new understanding and the assignment of fungi to a separate kingdom. In Australia concepts of nature, biodiversity, or conservation rarely extend to include fungi. Yet almost all of the plants and many of the animals that are the focus of these ideals would perish without their fungal counterparts. Even when their fruitbodies aren't apparent, vast mycorrhizal networks beneath the soil form beneficial relationships with the roots of most plants and underpin terrestrial

The common prettymouth, *Calostoma fuscum*, grows in bare soil and leaf litter in the Wombat.

ecosystems. Dozens of mammals and countless invertebrates also rely on fungi for food and shelter. It is perhaps time for a more plural and inclusive approach to the connective fungal matrix.

In May a dozen or so of us headed into the Wombat to seek these autumn treasures. We'd only taken three steps before keen eyes spied the first fungi and cameras started madly clicking. Once at ground level, ones focus

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shifts to a micro-world, adjusting to the more unusual fungal forms that colonise every crack and crevice. The emperor cortinar, dressed in a coat of mucilaginous purple poked through the layers of bark wrapped around the base of a messmate. *Collybia eucalyptorum* formed shelves of fruitbodies in a scar on the trunk. Our attention was then diverted to an overturned branch, its underside scalloped by the rainbow fungus (*Trametes versicolor*).

The rainbow fungus, *Trametes versicolor,* is an important recycler in the Wombat and is also known for its medicinal qualities.

A few steps further the tiny ruby mycena (*Mycena viscidocruenta*) glistened like its namesake, its stipe wrapped in a gloopy sheath, perhaps to retain moisture, but also pronouncing its stunning hue. The blue staining of a rotting fallen branch gave away its proprietor, the green elf cup (*Chlorociboria aeruginascens*). Further down the track the stalked puffball, *Calostoma fuscum* was just one of several finds among the litter that included colourful specimens of the coral genus *Ramaria*, an especially large specimen of the rhubarb bolete (*Boletellus obscurecoccineus*),

Collybia eucalyptorum spring from the crevice of a tree trunk.

the sulphur-yellow spines of the golden splash tooth (*Mycocacia subceracea*) and the soft-textured shelves of *Grifola colensoi*.

Fungal discoveries seem never-ending. Be sure to find at least an afternoon this winter to meet the Wombat's magical fungal inhabitants. ■

Through a childs eyes

By Ari Scheltema

"This looks like little roofs growing out of a tree."

Image taken on holiday in the Otways.
Photography © Ari Scheltema

Eyelashes and other disco tales

Words and images by John Walter

Fungi come in all shapes and sizes and the familiar mushroom is just one form adopted by this large and somewhat mysterious kingdom. These mushrooms (agarics) belong to the fungi division known as Basidiomycota, a name derived from the way they form their spores. Other Basidiomycota groupings include the jellies, the puffballs and the shelf or bracket fungi; in fact most fungi that are readily seen and recognised by bushwalkers belong to this division. There is a much larger division of fungi however known as the Ascomycota and the vast majority of our fungi species belong to the ascos. For example, Australia has some 3500 named species of lichen and around another 1000 unnamed and the fungal partner in all but a handful belong to the Ascomycota. (See our Dec 2014 issue for details on lichen partnerships).

Recent studies have moved a large number of species once thought to be fungi into other kingdoms so the estimated total number of fungi species in Australia has fallen as a result; the total numbers however are still very substantial. One report suggests conservatively that the total number of species in Australia is about 50,000. (Some reports say 250,000 species) Of these, 10,000 belong to the Basidiomycota and much of the rest to the Ascomycota but no clear number is provided for them.

So why do we not recognise the asco species if there are so many more of them than there are basidios? As I indicated earlier, it is all about the size. Macrofungi is a term for those species that are visible to the naked eye and while most of our 10,000 species of Basidiomycota fall into the macro category, almost all of the ascos are micro fungi, requiring the use of a microscope to see them. Tom May from the National Herbarium in Victoria estimates the number of Australian Ascomycota that count as macro is between 1200 and 2400 and the vast majority of these are only a few millimetres in size making them too small to be noticed by a casual observer.

You need to train your eye if you are to pick out even the larger ones. I have learned to take my time to stand up once I have gone to ground level to photograph another specimen. It is worthwhile having a close look around from near ground level as you often find other small species you might miss when standing or walking.

Two very different forms of *Chlorociboria aeruginascens* demonstrate the range of colour and form of this group.

Purple Jelly-disc *Ascocoryne sarcoides* and the soil based *Discinella terrestris*

Fragile white cups of *Lachnum virgineum* and *Inermisia fusispora*

Mollisia aff. *cinerea*

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Many of the "macro" ascos were once grouped together as the Discomycetes and some of them are featured in this article. Among the "discos", as they were sometimes referred, were fungi with disc-like fruit bodies and the often similar-looking group called the cups. While many cups are readily distinguished due to their cup-like shape, others only show a slightly upturned edge, which is just enough to separate them from the discs which are either flat or slightly convex.

You can find these cups and discs on soil, leaves, old fern fronds, litter such as seed capsules, wood, mosses, dung and burnt ground and they come in a myriad of colours. The green/blue colouring of the *Chlorociboria aeruginascens* group stands out but there are plenty of whites, creams, greys, yellows, browns and blacks; as well as purple and the very popular range of oranges.

Several species come with eyelashes and I have battled for years to capture good images of the lashes on the *Torrendiella clelandii*. These tiny cups are mostly around 3 millimetres in diameter but can reach 6mm and only appear on Eucalyptus twigs on the forest floor. The related *Torrendiella eucalypti* has even smaller cups however, from 1 to 1.75mm and, unusually for its name, it is only found on the fallen leaves of the Blackwood *Acacia melanoxylon*. It has been suggested that the name is due to mistaken identity as to the leaf the original collection was found on. Other "eyelash" species include *Scutellina scutellata* found on dead wood and the *Cheilymenia coprinaria* group, found on dung.

A number of the images accompanying this article are given a full species name but are then identified as belonging to a group of species. This is an indication of the amount of research still to be done on Australian fungi. Different populations of a species may show subtle differences and there is general acceptance that they most likely represent a collection of similar species, but with no research dollars and very few mycologists who are available to do the work should the money be found, the separation of these groups into individual species is not expected to occur for many years to come.

In the meantime there is a large number of species out there waiting to be captured by a lens or keen observer. The most comprehensive Australian fungi field guide* records just 70 macro species of Ascomycota and of these I would consider 37 to be discs or cups. By way of comparison the *Fungi of Switzerland* ascomycetes** volume lists 390 species of which around 250 are discs or cups and this is an incomplete record from an area 70 kilometres x 70 kilometres centred around Lucerne.

Beautiful lashes on the *Torrendiella clelandii* with sparse lashes on the tiny *Torrendiella eucalypti*

The black lashed *Scutellinia scutellata*

One of many of the Eyelash Dung-cup group *Cheilymenia coprinaria*

Pyronema amphalodes appears shortly after a fire.

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In Australia, with such a large and diverse land mass and a flora known for its richness of species, we clearly have a long way to go before we can claim to have a good understanding of our larger Ascomycota. You may have thought that the time of the disco is long over but believe me, there is still plenty to be found in the disco world for those prepared to look. ■

The readily distinguished Black Tacks *Lanzia lanaripes*

References:

Chapman, A.D. (2009) *Numbers of Living Species in Australia and the World*, - A Report for the Australian Biological Resources Study

Beaton, G & Weste, Gretna (1977) *Zoellneria species from Victoria, Australia* Transactions of the British Mycological Society 68 (1) pages 79-84 [These *Zoellneria* are now known as *Torrendiella*]

*Gates, G & Ratkowsky, D A (2014) *Field Guide to Tasmanian Fungi*

**Breitenbach, J & Kränzlin, F (Editors) (1984) *Fungi of Switzerland, Volume 1 Ascomycetes* [The name Ascomycetes is now disused, replaced with the Division (Phylum) Ascomycota]

Hepburn Wind Grant - More Cameras, More Opportunities

Wombat Forestcare would like to express its heartfelt appreciation to Hepburn Wind for a grant to purchase two motion-sensing cameras. We will now have 6 cameras (two from a previous Hepburn Wind grant in 2011) and this will mean that we can gather more information about fauna species and particularly threatened species.

Our camera project, as well as providing valuable information to be added to Victorian Biodiversity Atlas about locations of fauna species, also provides an opportunity for volunteers to experience the flora and different vegetation types of the forest.

If you are interested in being part of our camera research project and **committing a morning every three weeks**, get in touch with Hadley **admin@wombatforestcare.org.au** with a few reasons why you would like to be part of our team and a little bit about yourself. ■

Left: Surprisingly, many birds wander into the frame – this is a Red Browed-treecreeper *Climacteris erythrops* and was a new sighting for an area near Trentham.

Please come along and enjoy our next talk in the 'You, Me & Biodiversity' series:

Orchids and their role in the forest

Cathy Powers from Friends of the Brisbane Ranges will be back to speak about orchids and their role in the forest.

Saturday 15th August, 1.30 - 3.30pm
Trentham Neighbourhood Centre, High St, Trentham

Shepherds Flat Mine Site - Plundering Paradise?

By Gayle Osborne

The northern section of the Wombat State Forest, which abuts the Hepburn Regional Park, is a wonderful example of our drier forests. Brilliant arrays of wattles, wildflowers and orchids abound in spring. There are large areas of *Lobelia gibbosa* and patches of the threatened *Grevillea repens*. The area suffered greatly in the mining boom of the 1800's and the eucalypts (box, peppermint and stringybark) are mainly regrowth from stumps, however this is Brush-tail Phascogale *Phascogale tapoatafa* territory. They like this drier country and feed on smaller mammals, birds, lizards, and insects.

There are a multitude of waterways flowing north. These creeks can appear dry but water seeps underground along the waterways often collecting in pools.

Recently, despite strong community opposition, a 53.8 hectare mining licence MIN5572, was approved for an area within the Wombat State Forest near Shepherd's Flat. This is probably to be expected, as mining is a permitted land use within a State Forest. 'Park status' for the Wombat would have protected this site, as mining is not allowed in a State Park.

Above: Unidentified dragonfly above a pool in the waterway.

Below: Waterway on the Shepherds Flat mine site.

The next step is for the licensee to obtain an authorised work plan from the Department of Economic Development, Jobs, Transport & Resources. This document details the operation and extent of the works. During this process the relevant authorities look at the biodiversity and water issues.

The Department of the Environment biodiversity officer has few options and can usually only put in place restrictions to protect threatened species, set the amount of offset the licensee must purchase to compensate for loss of native vegetation and detail the rehabilitation of the site.

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Above: Large old stump on the mine site indictes how enormous these forest trees were before European intervention.

Should the proposed works be 20 metres either side of a designated waterway, the water authorities should insist that the licensee apply for a works on waterway permit.

The process of the licensee applying for a work plan does not allow for any community input. The community can only object to the issuing of the licence. The objection from Wombat Forestcare was dismissed on the grounds that it was "specific to potential impacts on the environment". We were told these issues will be dealt with in the work plan process, a process to which we have no input rights.

Once the work plan is approved the license has a legal right to proceed and work can only be halted if there are breaches of the work plan. Then a mining inspector (or possibly a mining warden) is called in and will deal with the breaches. There do not seem to be any instances where a mine has been closed due to non-compliance.

Also, once the work plan is approved, the licensee must commence a community 'consultation' process. However this can be as little a having a website and the licensee is not bound to take notice of community concerns.

Tall Lobelia *Lobelia gibbosa*

It is indeed shocking that there are so few legal protections for our natural environment. We all struggle with the legal aspects; on the face of it the processes are legal, however it is clear that our environment is not protected. The department regulators are also the bureaucrats in charge of making sure mining proceeds. It is not in their interest to keep mining out of our waterways if that is where the gold is.

There are examples throughout the country where communities have stood up to the legal rights of miners and many have succeeded. Look at the successes of the 'Lock the Gate' campaign.

As a community we need to do all we can.

Write to
Hon Richard Wynne
Minister for Planning
1 Spring Street, Melbourne, VIC 3000
and c.c. the letter to
The Hon. Lily D'Ambrosio
Minister for Energy and Resources
121 Exhibition Street, Melbourne,
VIC 3000.

Request that Sandy Mining Pty Ltd be required to complete an Environmental Effects Statement (EES) for MIN5572 as there are potentially significant environmental effects from mining this site.

http://www.dtpli.vic.gov.au/planning/environmental-assessment/what-is-the-ees-process-in-victoria

An EES would ensure that the work plan would be subject to more rigorous environmental assessment. Let's work towards protecting this special place. ■

To Bio-Massacre or not?

By Angela Halpin

The Australian Renewable Energy Target (RET) is a Federal Government policy designed to ensure that at least 20 per cent of Australia's electricity comes from renewable sources by 2020.

New legislation slashing the amount of renewable energy that will be built by 2020 by more than one-third, and most disturbingly including the burning of native wood waste, has passed through Federal Parliament's lower house and is now in the hands of the Federal Senate.

Victorian Senator John Madigan was a good neighbour of mine when I lived in Hepburn. I contacted him about the latest threat to biodiversity. Here's my edited email.

Hello John - So good to catch up today! Thanks for taking an interest.

Forest ecology and the politics around it really mean a lot to me. Our own local group - Wombat Forestcare has gone from strength to strength thanks to devoted passionate efforts of our committee to showcase the latest knowledge around forest ecology and working on protection into the future. A huge thank you to Gayle Osborne who is the convener of our group.

Planet earth is in the sixth extinction phase and Australia is one of the worst culprits in habitat loss and extinctions that result. I am confident in saying that biomass in the RET will be a disaster. So many threats already... Another nail in the coffin, another death blow to our overused forests. We have to add all the overlapping pressures together to understand why the RET is so feared by those seeking landscape health. I've found some links. One is in Renew mag. Most interesting for me was at the end... where it mentions that the public won't buy power generated from native forest biomass digesters. Why? Because its so easy to fault it on high pollution factors alone. It doesn't stack up compared to other renewables... So even after all that publicly funded forest harvesting etc... the habitat lost etc. we have ourselves an unsaleable product?? Can't be good policy.

The second link is the CSIRO State of the Environment Report 1996 that I worked on for one and a half years. Really changed me. These days I stand for nature at every opportunity. I see it as my duty, knowing what I know and working on the CSIRO research that I did... and unfortunately things are far worse now.

I know jobs matter to you... and real jobs go forward into the future... jobs in carbon capture, catchment restoration and food production. Aquifer recharge, clean water and healthy farm landscapes depend on the working services that healthy forest environments give us. Thats how we get good jobs... from a clean green landscape. If Biomass becomes legally part of the RET - it will deliver the fatal blow to Australia's forest ecosystems. An appetite for 'waste' will be created and then the monster is out of the bag.... just like the wood chips industry... leaving the public purse with a degraded ecological mess. Biomass in the RET is a vote for a tiny struggling heavily taxpayer subsidised industry. Forest wars start up again. I don't want my taxes used this way.

Forests don't have 'waste'... essential woody debris/tree tops are broken down by microbes/insect/fungi forming soil and trapping nutrients... so essential for downstream healthy farms and urban water supplies. Biomass burning will be a licence to attract global attention for all the wrong reasons. Doing all this forest damage for a polluting inefficient process seems like vandalism to me. I know the loggers really want this but we need to save them getting into a dead-end venture. Saying no is hard but helps the industry refocus on achievable sustainable goals. Saying no prevents time wasting battles that no one wins. Kinder to business in the long run.

On a personal note... I will be out in the bush aiming to stop this. This is why I'm asking for your help. Most importantly I really want to stay home and tend my sheep and get on with farming. But my extensive experience with the timber industry has shown me that their aspirational talk is never reflected in the on ground results... I know the timber industry tells you that biomass is a clean and sustainable process... but they are alone in that idea. It's not. Please stand up for other forest users. We totally outnumber the timber cutters!! Australian forests are worth more standing. Thats the best policy outcome. Not fuel, not waste, but standing and absorbing carbon, clean air and water for the majority. Let's care for our landscape and avoiding this dead end inclusion. Please vote no to biomass in the RET.

Thank you John for listening... and being you. Sorry this is a bit of a ramble... Good luck in the bear pit - I would love to discuss this subject further when you are back in Sunny Ballarat?? If I find any more good references I'll send them on to you. Warmest regards Angela xx ■

http://www.environment.gov.au/science-and-research/state-environment-reporting/soe-1996

http://reneweconomy.com.au/2015/10-reasons-why-burning-wood-waste-for-electricity-should-not-be-included-in-the-ret-24698

Planarian - Flat Worms

By Gayle Osborne

Above: Yellow Land Planarian attacking a millipede.
Photography © Gayle Osborne

Above: Pair of Land Planarian probably mating.
Photography © Gayle Osborne

At this time of the year it is not uncommon to see a bright yellow or red worm threading it way across the ground. Lift decaying logs and you might find striped worms. These are land planarian, known as flat worms, although their shape is not necessarily flat.

Planarian are mainly found in salt and freshwater ponds, but we find a number of terrestrial species in the Wombat Forest usually under decaying logs or in litter.

Geoplanidae is a family of flatworms known commonly as land planarians.

Flatworms are voracious carnivores, preying on other invertebrates such as earthworms, snails, slugs, insects and spiders. They produce mucus on which to glide and many species have adhesive suckers that are used to capture prey.

Once they have captured their prey they drown the victim in mucus and suck out their insides.

They are also hermaphrodites and their reproductive system consists of both male and female gonads. Eggs are laid in gelatinous masses under logs and in soil.

One would assume that the bright colours of some planarian and that they move in the open, that they are possibly toxic to predators.

They are an understudied but important group of organisms of the soil ecosystem. ■

More information:
http://museumvictoria.com.au/discoverycentre/discovery-centre-news/2010-archive/land-planarians/

http://australianmuseum.net.au/blogpost/at-the-museum/planarian-worms

Right: Searching under rotting logs for planarian can locate other predators such as scorpions. They feed on spiders, centipedes, millipedes and even other scorpions. Life in the soil ecosystem can be as dangerous as the Serengeti.

Photography © Gayle Osborne

Trevor's Bird Page

By Trevor Speirs

Australian Shelducks

A common waterbird throughout northern and western Victoria, the Australian Shelduck *Tadorna tadornoides* is an occasional visitor to the Hepburn/Wombat region, with most sightings here recorded during autumn and winter.

These birds were seen grazing in a Little Hampton paddock recently.

Their preferred habitat includes pastures, large lakes, shallow wetlands and open woodlands.

Shellduck, *Tadorna tadornoides* grazing paddocks at Little Hampton
Photography © Gayle Osborne

Like many other Australian ducks, the Australian Shelduck, also known as the Mountain Duck, usually breeds in tree hollows and can produce a clutch of up to 14 eggs.

Outside the breeding season (July – October), Australian Shelducks, our largest duck, can form flocks of over a thousand birds, which congregate during summer in the vast freshwater lakes of Southern Australia.

Bassian Thrush

Bassian Thrush, *Zoothera lunulata* - forgaging on the forest floor.
Photography © Gayle Osborne

Winter can be a quieter time in the forest, with many bird species moving north to warmer climes.

The Bassian Thrush *Zoothera lunulata*, a handsome ground dweller of wetter, well vegetated forests of southern and eastern Australia, is one that can usually be seen in the Wombat throughout the year.

Though secretive and shy, when disturbed while foraging on the forest floor, it will often fly to a stump or low branch, freeze, and allow a moment or two's observation.

Breeding starts from late winter, with a large cup shaped nest often built at the junction of the trunk and a large vertical limb, and like several other local species, the nest is furnished with moss and lichen to aid in camouflage.

A near identical relative, the Russet-tailed Thrush *Zoothera heinei*, Australia's only other endemic thrush, is found at lower altitudes of ne NSW and parts of eastern Queensland.