



Wombat Forestcare Newsletter

Welcome to our summer edition. Butterflies, dragonflies, bees and a large range of insects are emerging. Spend some time observing the flowering plants in the forest and be rewarded with sightings of tiny indigenous bees. The rivers and creeks are running strongly, benefitting from the record rains. As always, we encourage you to walk in the Wombat Forest and enjoy its wonderful diversity. **Gayle Osborne** (editor) and **Angela Halpin** (design)

Wombat Forest ‘Not For Sale’



Photography © Sandy Scheltema

By Gayle Osborne

Wombat Forestcare members were horrified to discover that the CFMEU is seeking to source sawlogs from the Wombat Forest, in addition to the destructive salvaging of windfallen timber currently taking place; compromising the very values that ensured it was designated to become National Park. In an open letter to the Opal Paper Mill in Maryvale, Gippsland, the union stated that *“there is a potentially viable option for alternative timber supply via the Wombat Forest...”*.

On Sunday 11th December more than 70 people from environment groups and the local community came to the Wombat Forest to express their anger at the continued destruction of the forest. Ballarat and Castlemaine Field Naturalists Clubs joined with the Moorabool Environment Group, Ballarat Wildlife Rehabilitation and Conservation, Bacchus Marsh Platypus Alliance, Actively Conserving Trentham, Central Victorian Biolinks Alliance and Wombat Forestcarers to show their support for the campaign to oppose sawlog harvesting and halt the salvage works in the Wombat

Forest. The groups called on the government to immediately legislate the Wombat-Lerderderg National Park.

VicForests are trucking our windfallen logs to Maryvale, a 520 kilometre round trip, to produce paper, much of it destined for overseas markets. Opal, a Japanese owned company, proudly states that they export to over 70 countries. Not only are there no benefits for the local community, but the potential for nature-based tourism is being destroyed.

A document obtained under Freedom of Information shows the intention to salvage 55,000 cubic metres of timber by the end of February 2023 and this covers only a few of the intended coupes.

Our iconic threatened species such as the Greater Gliders and Powerful Owls, already under pressure due to loss of habitat from last years storm and current ‘salvage logging’, will be further impacted. With Australia having one of the worst extinction rates in the world, do we want these special animals found in the Wombat to join the list? ■

Koalas: Sitting Pretty?

By Trevor Speirs

Following the extensive 2019–20 bushfires on Australia's east coast, the status of the Koala *Phascolarctos cinereus* on the EPBC Act has been changed from vulnerable to endangered in Queensland, NSW and the ACT. It raises questions on how this much-loved marsupial is faring in Victoria, and even here in the Wombat Forest.

As far as I'm aware there have been no official surveys in recent times in the Wombat to estimate Koala numbers but from casual observations the Wombat Forest population does appear healthy, and in numbers that aren't putting pressure on the environment. Occasionally, a Koala will wander in front of a Wombat Forestcare remote sensing camera and their grunts and groans are often heard at night on various song meters located throughout the forest. This is especially so in spring and summer when the breeding season is in full swing. From the mountain grey gum habitat in the east to the narrow-leafed peppermint forest which predominates in the north-west of the Wombat, the Koala population appears to be quite stable.

Fortunately, we do not have the problem of an over-abundance of Koalas which exists in some other areas of the State. In the Otways for example high concentrations of Koalas are causing tree death in certain parts of the forest. This has led DELWP to currently undertake a relocation program within the Otways, which will hopefully benefit both the Koalas and their environment.

There have been some very informative books and papers written about the history of the Koala since European settlement and they really do make engrossing reading. Many readers would be aware of the Koala's plight over the last two centuries but for those that aren't I have done a brief summary here.

The first recorded European sighting of the Koala was near Sydney in January 1798, a decade after the arrival of the First Fleet. Many Australian mammal species had



Young Koala seen at Kangaroo Creek, Wheatsheaf. Photography © Gayle Osborne.

been observed and recorded by Europeans at this time, suggesting that if Koalas were present, they were in very low numbers around the explored and settled areas of NSW. This also appears to be the case when the new settlers moved into Victoria, early in the 19th century. References to the Koala in Victorian historical records were very rare with nearly all sightings coming from the forested areas in the east of the State.

This is of note, as Koalas are now generally considered to prefer more open forest and woodland to wetter forest. This suggests they should have been more easily observed in the woodland habitat, which prevailed over much of the central and west of the State. Of particular interest, when the new settlers first arrived in the red gum country

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of the lower Goulburn River region around 1839, there were no records of Koalas being in the area. They started to be seen there in the 1850s and by the 1860s they were considered abundant. Their numbers continued to increase rapidly over the ensuing years.

Probable reasons for this surge in numbers are that when the Aboriginal population began to tragically fall with the arrival of the Europeans due to displacement and illness, traditional hunting pressures eased on the Koala. Also the trapping and strychnine poisoning by pastoralists of the predatory Dingo would have certainly benefited the Koala. In fact, towards the end of the 19th century, Koalas had become so prolific, the trading and exporting of their skins had become a widespread activity on Australia's east coast.

The trade in pelts had become so large that due to public pressure, the Victorian government passed legislation in 1898 to protect the diminishing "native bears". The Victorian numbers didn't bounce back quickly with the population being thought to be under 1000 animals in the 1920s, although this is thought to be an underestimation. Disease, land clearing and bushfires are some of the likely reasons for such a slow recovery rate.

Fortunately, some Gippsland locals had translocated Koalas from the mainland onto French and Phillip Islands in Westernport Bay towards the end of the 19th century. While these animals were to prove invaluable for the future conservation of Victoria's

Koalas, the islands' populations increased to such a level, that serious over-browsing of the eucalypts was to cause the mortality of many koalas and trees. This first occurred on Quail Island, resulting in the whole population being removed and placed on the mainland in the mid-1940s. Koalas from French and Phillip Islands too, would soon become part of an extensive relocation program onto the mainland and other islands.

It was in this decade that Koalas were re-introduced into the Daylesford and Macedon region, followed by more releases into the nearby Wombat Forest during the 1950s. Whether there were Koalas still present in the forest at this time is unknown but it would be reasonable to assume that today's Wombat Forest Koalas are mainly descendants from animals introduced from French and Phillip Islands.

Recent modelling by the Arthur Rylah Institute has estimated the Victorian Koala population to be around 450,000. While these are healthy numbers, the risk of more intense bush fires, ongoing land clearing, diseases and possible genetic problems, means well-considered government management is essential for Koala conservation. ■

References

Lee, A. & Martin, R. (1996), *The Koala - A Natural History*, New South Wales University Press, Kensington, N.S.W.

Menkhorst, P 2008, 'Hunted, marooned, re-introduced, contracepted: a history of koala management in Victoria', *Australian Zoologist*, vol. 34, pp. 73-92.



Koala, with ear tag, relocated from French Island to the Wombat Forest, probably in 2008, to relieve pressure on the habitat on French Island. Photography © Gayle Osborne.

Naming Lichens: why it is not for the faint-hearted

Words and images by John Walter

Regular readers of my articles will probably recognise that I have a passion for all kinds of living things. Not content with mainstream flora, I also enjoy working with bryophytes (mosses and liverworts) and have found time to focus on ferns and have fun with fungi. The purchase of a better-quality camera and macro lens and flash allowed me to chase moths around my house for a year and more recently this has expanded to include all forms of insects and my camera is focused on pollinators. Each area has its challenges, first with the finding, then the photographing and afterwards your nights are filled with the identifying and the naming.

I was surprised upon looking back over past articles to see that I have written two items on lichens. The first, titled *Living on the Edge* appeared in issue 25 in September 2013 along with a great lichen article from Alison Pouliot; and the second was titled *Extremists* and was in issue 30 in December 2014. After eight years it seems I am now ready to tackle the subject once again. I have no difficulty in finding and photographing all manner of strange and wonderful lichens, but it is the identifying and naming bit that is the problem.

My latest burst of activity on the subject was inspired by a chance meeting with Jeremy Neal from Wombat Native Plants in Bullarto. Jeremy mentioned his recent visits to the wet gullies on the south-facing slopes of the Blackwood Range and the interesting flora to be found there. This led me to look at his iNaturalist posts later that day and the realisation that he had located a population of a moss that I had long looked for in the Wombat State Forest but had only found in the Otways. The species, *Cyathophorum bulbosum*, has been recorded at Mount Macedon and is plentiful in the Dandenongs and east of Melbourne. Jeremy was not the first to locate this species in the Wombat, however, as I later discovered that a team of botanists from the Herbarium collected it in an adjacent gully in February 2019.

What excited me about this record was the thought of what else might be found in these gullies if they were wet enough for this moss to favour. I was forewarned that the gullies were steep and loaded with fallen timber making access difficult and experience told me they would also contain a plentiful supply of leeches. None of this was a deterrent however and on my first visit a couple of days later I was excited to find an array of lichen species that I had not previously seen in the Wombat.

Many of the lichens were also species that I had a reasonable



The stems of *Cyathophorum bulbosum* grow out horizontally from the substrate giving the plant a fern-like appearance.



The unusual fruiting capsules are produced on the underside of the stems; a feature I have not seen on any other moss species.



This view of the underside shows the capsules in more detail as well as the distinctive circular under leaves.

chance of identifying as they can be described as larger foliose lichens. The terms crustose, foliose and fruticose have long been used to provide a description of a lichen's form or habit but they do not necessarily help you sort out the taxonomy or name of the species, genus or family. For example, one species I will feature in this article has both a foliose and a fruticose form and some members of a family or genus may be described as crustose while others are listed as foliose. They are useful terms however and provide you with a starting point when it comes to species identification.

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There are also many sub-forms which further complicates things with leprose and foliicolous being examples of crustose lichens. Leprose refers to the lichen having a granular appearance while foliicolous is a reference to the formation of the lichen on the foliage of a plant. See the images for examples.

Another form is squamulose which is considered by some to be a sub-form of crustose and by others as a form in its own right. A good example of squamulose would be the *Cladonia* species, although the *Cladonia* also produce podetia (a fruticose component) which can become ecorticate and granular sorediate, often forming scyphi with apothecia on the margins. If you are thinking that I lapsed into a completely different language in that last sentence, then you are correct. I briefly dropped into the language of lichens which is one of the reasons why lichen identification is not for the faint-hearted. I have a wonderful publication prepared by the Museum of New Zealand Te Papa Tongarewa in Wellington which includes a 36 page illustrated glossary and is always close to hand when I am working with lichens.¹ It is still possible to find second-hand copies online, but they are scarce.

But I am getting a little ahead of myself here. A brief definition of the three main forms is in order. A crustose lichen is effectively two dimensional, thin and flat and firmly stuck onto the surface on which it is growing. It is so well stuck that it is not possible to separate it from the substrate without destroying the structure of the lichen. Also known as micro lichens, they can be the most difficult to identify without specialised knowledge.

The fruticose lichens are at the other end of the scale. They are clearly three dimensional and can be erect, tangled, shrubby, pendant; often on wood or can be coral-like cushions growing on soil.

The third group, the foliose lichens fall somewhere in between. They are generally flat, often circular, and are sometimes mostly stuck on to the substrate like a crustose species; but in that case the outer lobe shaped edges will still be free from the substrate and you can see a little of the underside. Some other foliose species are only attached near their centre and the flat lobes cascade out free from the substrate often lying on top of other lobes in a rather convoluted stack of oddly shaped pancakes.

The fruticose and foliose lichens are also known as macro lichens, and they are the groups I find the easiest to identify.

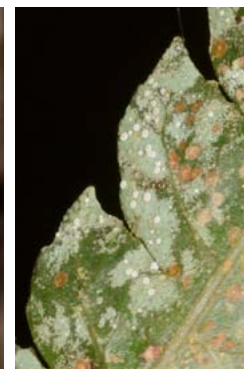
They have also attracted a little more attention in publications thus making them better known to amateur enthusiasts like myself.²



Crustose Lichens on a rock at Bryces Flat. I count at least five species and almost 200 individuals in this Lichen mosaic.



Species mix on basalt near Malmesbury. While these crustose species are more colourful, they lack the black outline created by the prothallus of the species in the upper image. The orange one is a species of *Caloplaca* and the olive/brown one in the lower middle of the image is in the *Neofuscelia* group which are now listed as *Xanthoparmelia* species.



Left: *Chrysothrix* sp. a leprose species. Most yellow powdery lichens get called *C. candelaris* by their observers, however *C. xanthina* is the most commonly collected species in our Herbaria.

Right: An unidentified foliicolous species on a tree fern pinnule from Schillitoe Creek. The white discs are 0.25 mm or less in diameter.



Cladonia pleurota has basal squamules seen here scattered across the wood substrate while the upright podetia are fruticose in form. The cups at the top of the podetia are the scyphi and the red dots on the cup rim are the fertile bits called apothecia.

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The serious lichen enthusiasts will carry a set of chemicals with which they test parts of the lichen and look for colour changes in response to the application of a droplet. This testing is essential for the identification of many lichens, but as one of the chemicals used is quite toxic, I have chosen not to venture down that road. Perhaps that makes me one of the faint-hearted, but the reality is that I do not dabble with lichens frequently enough to make it worth my while to take on the additional work and risks. I do carry a little Swiss made 10 x magnifying lens with a built-in lighting system that I purchased many years ago. It is a very expensive item that goes by the name of Lichen candelaris (I will let you do your own translation) and I use it virtually every day, mostly on insects nowadays but also on mosses, liverworts and other flora as well as lichens. You can purchase cheaper versions online from Entomological Supplies, but the quality of the optics is not as good. My thanks are due to Alison Pouliot for introducing me to this wonderful little lens.³

So, what were the new lichens I found in the Wombat I hear you ask? The most exciting ones belong to two closely related genera, the *Sticta* and the *Pseudocyphellaria*. Both these genera have species where the fungus (mycobiont) combines with an algal species (photobiont) which results in a lichen that is green in appearance when wet; they also have species where the photobiont is a cyanobacteria which results in a steel blue or brown lichen. Both of these different coloured lichen groups appear grey when they are dried out after sunny weather.

Some of the *Sticta* species have a special adaptation whereby the fungus is able to combine with an alga and produce a typical foliose lichen and the same fungus can also unite with a cyanobacteria species to produce a lichen that looks a lot like coral or a cluster of small trees. These are the so-called Chimera Lichens. For many years lichenologists recognised the following as two different lichen species. *Sticta stipitata* is a typical foliose lichen producing a beautiful green thallus with brownish apothecia (spore producing discs) on the upper surface, and *Dendrocaulon dendrothamnodes* is tiny tree-like species that was often found growing in conjunction with *Sticta stipitata*. Our international species naming conventions do not deal well with composite organisms such as lichens, but current convention states that they are named after the fungus species. The fungus in *Sticta stipitata* is just that, *Sticta stipitata*. Because *Dendrocaulon dendrothamnodes* is actually the same fungus species, it must also be now named *Sticta stipitata* even though the resulting organism is completely different in appearance.



Sticta stipitata in its more typical foliose form seen when it has an algal partner.



Sticta stipitata when partnered with the cyanobacterium forms a fruticose lichen. The inset shows the underside, and the collection tag is 3 cm wide. Formerly known as *Dendrocaulon dendrothamnodes*.



Pseudocyphellaria glabra, the numerous tiny lobes on the margins are called isidia and are a form of asexual reproduction as they can readily detach and grow.



Pseudocyphellaria billardierei has dish shaped recesses in its thallus which gives its strap-like lobes a distinctive "faveolate" appearance. Its black marginal apothecia are shown in the inset but the lobes here are wider which raises questions as to whether that image is the same species or the similar *P. faveolata*.

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This ability of a fungus to unite with both an alga and a cyanobacterium is relatively common in lichens, but the results are not usually as distinctive as is the case with *Sticta stipitata*. *Pseudocyphellaria glabra* and *P. billardierei* were also growing near the *Sticta stipitata* as was *Pannaria minutiphylla* which forms a large bright green thallus in which is embedded small dark patches called cephalodia. The cephalodia occur where the fungus has established with a cyanobacterium and the larger green thallus has the more common fungus/alga association. This cephalodia arrangement is more common than what we see with the *Sticta*, and several species exhibiting this feature occur within the Wombat.⁴

I have included an image of *Pseudocyphellaria neglecta* to illustrate the lichens that pair up with a cyanobacteria instead of an alga so you can see the more typical colour of the thallus that develops in that scenario. There are several other *Pseudocyphellaria* and *Sticta* species I could have chosen instead, as well as some *Peltigera* species and *Nephroma cellulosum* which has its apothecia attached to the underside of the thallus. (The thallus is another name for the non-reproductive body of the lichen.)

This diversity in species is yet another reason why the naming of lichens is not for the faint-hearted. Many lichen genera have similar looking species in which the differences are difficult to see in images. In some instances, these differences can only be determined by chemical analysis. While there are some excellent resources available for the serious enthusiast such as the *Flora of Australia* (Volumes 54–58) and their online checklists and recent photographs files at <https://www.anbg.gov.au/abrs/lichenlist/introduction.html>, the number of species reliably illustrated is quite low. Working through a key can be off-putting for many, particularly when one of the early questions relates to a chemical response. Two of the three chemicals used are not as hazardous as the third so perhaps it is time I invested in a couple of small bottles to add to my kit. ■

Notes

1. Malcolm, W.M. and Galloway, D.J. (1997) *New Zealand Lichens. Checklist, Key and Glossary.*
2. Kantvilas, G. & Jarman, S. J. (1999) *Lichens of rainforest in Tasmania and south-east Australia* is one publication which includes images by B. A. Fuhrer.
3. The Lichen candelaris is still advertised for sale online at a hefty €349 which is pretty much what I paid over a decade ago.
4. I have records for *Stereocaulon ramulosum*, *Psoroma* species, *Placopsis* species and *Pannaria farinosa* which all produce cephalodia.

All the images were taken in the Wombat State Forest except for the crustose mosaic noted in the captions from Malmsbury.



Pannaria minutiphylla may look like a crustose lichen to some but it is foliose as the edges of the lobes are not attached to the substrate.



Pseudocyphellaria neglecta is widespread in the Wombat and often has phyllidia on the margins of the thallus. These small lobes are much like isidia but have distinct upper and lower surface.



Pulchrocladia retipora is included here as an example of a fruticose lichen. They form small net-like cushions on soil. Often covering large areas but beware, there are several similar looking species.



The *Usnea* species are probably our best-known fruticose species and this one is *Usnea molliuscula* and like the *Pulchrocladia* above, there are lots of other species out there to confuse you.

Propagating threatened flora

Words and images by Jeremy Neal

Seeing a green fuzz emerge on a seedling tray after months of waiting for germination, or finding roots twisting out from a pot of cuttings, can be a source of much excitement for the botanically inclined. This is most certainly the case when propagating rare species from the Wombat Forest and surrounds.

Back in 2021, Gayle from Wombat Forestcare contacted me with regards to propagating the Swamp Bush-pea *Pultenaea weindorferi*. At the time, I wasn't able to collect seed or cuttings from this species, due to its recent inclusion on the FFG Act threatened list. Several months later I applied for a permit to collect propagules from Swamp Bush-pea and a number of other local FFG Act threatened species. DELWP processed the application and we are now in a position to propagate (or attempt to propagate) a number of these threatened species.



Grevillea repens Ajax Rd, Daylesford.



Grevillea obtecta cutting showing good root formation.



Grevillea obtecta (left), *Grevillea repens* (right).

Creeping Grevillea *Grevillea repens* and Fryerstown Grevillea *Grevillea obtecta* are two closely related species on our permit. Both species are striking well from cuttings. Their eventual inclusion in local parks and gardens outside their natural range, will provide insurance populations in the event of disaster or disease and will provide an alternative source of propagation material in future.

Wiry Bossiaea *Bossiaea cordigera* can be locally abundant in swampy vegetation throughout the Wombat Forest.

However, it also is on the FFG threatened list due to its limited distribution throughout Victoria; Wombat Forest being a particular stronghold for this species. Wiry Bossiaea is a small pea-flowering shrub, that often tangles its way through other vegetation to reach a height of a metre or so. Seed from Wiry Bossiaea will be collected this summer-autumn, in the hope of propagating a substantial number for chosen planting sites.

Satinwood *Nematolepis squamea* subsp. *squamea*, is another species on our permit. This species was recorded nearly 20 years ago in the Barkstead region, but has not been located again since. Another population is said to have occurred adjacent to the Bullarto Reservoir; it too has disappeared. Satinwood could well now be extinct within the Wombat Forest. However, a horticulturally inspired Bullartian took a cutting from an individual at the Bullarto Reservoir in decades past and has a healthy established plant growing in his garden. I have successfully grown a number of plants from this presumed local provenance individual. This may be the last of what was likely a

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genetically distinct population, being geographically isolated from plants in both the Otways and eastern Victoria. Hopefully this species can be found again within the Wombat Forest, as being limited to one (presumably local provenance) plant, is not a favourable position to be in with regards to genetic diversity!

Other threatened species on our FFG act permit include: *Pultenaea reflexifolia*, *Pultenaea vrolandii*, *Pultenaea graveolens*, *Platylobium rotundum*, *Leucopogon microphyllus* var. *pilibundus*, *Acacia nanodealbata*, *Acacia sporadica*, *Eucalyptus brookeriana*, *Eucalyptus yarraensis* and *Sticherus tener*.

Some of these species are readily able to be propagated, others difficult and others an unknown quantity. The Critically Endangered Sporadic Wattle *Acacia sporadica*, will be of particular interest. This species occurs north of the Wombat Forest, at Fryers Ridge. It is not known to produce viable seed, instead occasionally reproducing via root suckers. If success is had with this geographically restricted species, it will be cause for celebration!



Wiry Bossiaea *Bossiaea cordigera*.



Satinwood *Nematolepis squamea* subsp. *squamea*, cutting.



Sporadic Wattle *Acacia sporadica*.

The Rare and Secretive Grey Goshawk

By Trevor Speirs

In recent years there have been a number of sightings of the impressive Grey Goshawk *Accipiter novaehollandiae* in this district, from as far afield as Elevated Plains in the north, to Lyonville in the east. As rare as it is secretive, seeing this FFGA vulnerably listed species in the wild is always a thrill. Although, one reported sighting was at a Wombat Forestcare member's kitchen window, which probably can't be classified as particularly wild.

The bird in this photo was seen near the headwaters of the Coliban River and this spot has lots of tall, white barked gums, the sort of bush that the Grey Goshawk prefers. As Grey Goshawks are nearly always of the pure white phase in Victoria, these type of gums can provide them valuable cover as they perch, waiting for hunting opportunities. And with tails longer than our other diurnal raptors, Goshawks are perfectly adapted for manoeuvring amongst these taller forests in pursuit of prey.

Grey Goshawks, like many raptors are an example of sexual dimorphism, and in this case, it is the female Goshawk that is larger than its mate. In fact the female, at around 700 grams, can sometimes be nearly twice the male's weight and it is this size difference that enables her to take larger prey items. The male will increase its prey size in the breeding season when he is responsible for much of the hunting. From birds the size of the



Grey Goshawk disturbed when feeding on a rabbit on a roadside at Lyonville South. Photography © Gayle Osborne.

White-faced Heron, and medium sized mammals like the Eastern Ring-tailed Possum, these birds are powerful hunters. To be able to drag a ring-tail (they can weigh up to 900g) out of its drey, really shows the strength they possess. ■

Wombat Forestcare

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Wombat Forestcare Inc. is dedicated to preserving the biodiversity and amenity of the Wombat State Forest, Central Victoria, Australia, by utilising the skills and resources of the community.

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, (03) 5348 7558 or email info@wombatforestcare.org.au
Membership fees: \$15 single and \$20 family. Visit our website - www.wombatforestcare.org.au

The Wombat Forestcare newsletter is proudly produced on the land of the Djaara people.