

Welcome to our March edition. As autumn approaches, we hope for an abundant fungi season. We continue to oppose the environmentally destructive logging in the Wombat Forest and now the recent incursion into the Cobaw Forest with its stunning granite outcrops. Gayle Osborne (editor) and Angela Halpin (design)

Salvage logging in the Cobaws

By Trevor Speirs

Lying approximately 12 kilometres east of Kyneton, and surrounded by mainly cleared land, the Cobaw State Forest is an important parcel of public land offering a vital sanctuary for its flora and fauna. Following the 2018 Central West Investigation by the Victorian **Environmental Assessment** Council, it was recommended for protection in the form of a conservation park. After some delay the Victorian Government accepted this recommendation in their parliamentary response in 2021 but as yet this has not been legislated.

The Cobaws contain several depleted Ecological Vegetation Classes (EVCs), such as Herb-rich



Rocky outcrop in the Cobaw Forest. Photography © Gayle Osborne.



Brush-tailed Phascogale at a tree hollow. Photography © William Terry.

Foothill Forest and Sedgy Riparian Woodland, as well as the vulnerably listed Valley Grassy Forest. In the higher reaches of the forest large granite boulders are interspersed with equally impressive tall hollow-bearing eucalypts providing homes for Powerful Owls Ninox strenua and Mountain Brush-tailed Possums Trichosurus cunninghami.

At a lower elevation in the southern end of the forest there is a section that has decaying fallen timber and many roughbarked eucalypts, predominantly Long-leaved Box Eucalyptus goniocalyx, with quite an open understorey. It appears to be long unburnt and the ground cover is not dominated by bracken, which is the case in some other parts of the forest. Fortunately this area was not impacted by the 2016 fuel reduction burn which escaped and burnt a large area of the forest and some adjoining private property. As it appeared to be ideal habitat for the Brush-tailed Phascogale Phascogale tapoatafa it was no surprise to capture images of this threatened mammal on the first round of motion-sensing cameras installed by Wombat Forestcare.

The loss of this type of habitat state-wide through clearing, firewood collection and frequent burning, has led to the Brush-tailed Phascogale being classified as vulnerable in the Flora and Fauna Guarantee Act 1988 (FFGA) Threatened List. Phascogales, like other small native carnivorous marsupials, depend on fallen timber and forest floor litter to provide their necessary prey items, mainly arthropods. The Department of Environment, Energy and Climate Action (DEECA) Naturekit website shows this area classified as Grassy Dry Forest, a depleted EVC that is also closely associated with the Common Dunnart Sminthopsis murina, a relative of the phascogale, which is also listed as vulnerable in the FFGA Threatened List.

Following the 2021 storm event, VicForests released a Forest Recovery Timber Utilisation Plan (TUP) and the entire Cobaw State Forest was to be subjected to a salvage logging operation. This has since been scaled back and salvage coupes now cover around 540 hectares in the SE part of the forest. That VicForests still have intentions to log in the Cobaws is inexplicable as all the forest is classified as Special Protection Zone, which should effectively exclude any commercial logging. The Code of Practice for Timber Production



Large log handling machine on a track in the Cobaw Forest. Photography © Gayle Osborne.



Salvaged logs, presumably destined for pulp due to their rotting cores. Photography © Gayle Osborne.

2014 (amended 2021) states "Special Protection Zone (SPZ) means a component of Forest Management Zoning Scheme (FMZS) which are managed primarily for conservation values, forming a part of Victoria's Comprehensive, Adequate and Representative reserve system. Timber harvesting operations are generally excluded from SPZ." Also, in the current Midlands Management Plan all timber harvesting is excluded in a SPZ. Furthermore, under the Code's management and planning standards, the prescription in the Midlands Forest Management Area (FMA) for the Brush-tailed Phascogale prohibits the removal of naturally fallen timber.

Meanwhile DEECA, having engaged VicForests' contractors, have actually begun salvage logging in the Cobaws, with their operation centred on roads/tracks.

Initially only to be concentrated on five "key roadsides", this has since expanded and a recently released DEECA map shows additional tracks have been added. Many of these are no more than rough 4-wheel drive tracks, deeply rutted and prone to erosion. Although the salvage logging is occurring in an SPZ, DEECA is using the *Forests Act 1958* to legitimize their operation. The Act virtually gives the Chief Fire Officer carte blanche in his/her powers that can be used in the name of fire mitigation on public land. Ostensibly, DEECA are claiming that the wind thrown timber in the Cobaw SF is a substantial fire risk and these logs need to be removed. After driving along several of the accessible nominated tracks, the amount of wind thrown timber on most tracks is no more than would be expected to be seen in

a healthy functioning forest. One track near the phascogale habitat has been impacted more than others but once the fallen trees rot and form cracks and hollows, it will provide important habitat for our shrinking biodiversity. Mountain Brush-tailed Possums are just one species that are known to den in fallen logs. Nearly two years after the storm event, the majority of all the logs so far harvested, appear cracked and split, meaning they will be destined for pulp rather than sawlogs.

As these works are being undertaken in the name of the Chief Fire Officer, for fire mitigation, it excludes any oversight from the Office of the Conservation Regulator, the State's environmental watchdog in regard to logging. The Cobaws have not been as well surveyed for biodiversity values as other areas, and this has to be a real concern. For example, with the 2020 discovery of the endangered Mountain Skink Liopholis montana in the nearby Wombat State Forest there must be a possibility of the species also occurring in the Cobaws. The skink is known to inhabit granite outcrops in the eastern uplands and this geographical feature is scattered

throughout the Cobaws. It is unclear whether DEECA have conducted any recent surveys in the Cobaws, as they have done in the Wombat, and as SPZs are "managed primarily for conservation values" surely this is a necessary requirement.

Following several visits to the Cobaws, it is hard not to be cynical when considering the government's response to the storm damage there. While the removal of logs and dangerous trees on or close to tracks that impede fire



Valley Grassy Forest, a vulnerable EVC. Photography © Gayle Osborne.

mitigation is logical and appropriate, the use of large heavy machinery in sensitive habitats seems totally unwarranted. Once the logs have been removed it is expected that DEECA will conduct fuel reduction burns to reduce the amount of residual bush litter left following the salvage logging. If other fire affected parts of the Cobaws are anything to go by, this will see an abundant growth of bracken, which virtually excludes other types of understory, which is a very negative outcome in terms of a healthy biodiversity.



Alison Pouliot's new book

Underground Lovers presents compelling questions and insights about fungi but is also an intimate celebration of their astonishing beauty and complexity.

It melds science and personal reflection to explore overlooked themes, among them – fungi and fire, fungi and climate change, fungi and aesthetics, fungi in ecosystem restoration, and fungi and indigenous wisdom. The book explores fungi through first-hand stories – from the Australian desert to Iceland's glaciers to America's Cascade Mountains. We'll dwell with fungal allies and aliens, discover how fungi hold forests together, and why humans are deeply entwined with these unruly renegades of the subterrain.

https://alisonpouliot.com/books/

Of Dragons and Damsels

Words and images by Lynda Wilson

Part 1: Dragonflies

As a child in a small splash pool in suburban Melbourne, when a fellow splasher yelled out "DRAGONFLY", I recall visions of a rapacious, vicious, not-quite fire-breathing creature that would either sting or bite us to the death! I recall sinking as low as I could in the inches of water in the hope of avoiding the wrath of the frantic flying beast.

While my fear of these delicate insects soon waned, it's only been in these recent wet years that I've begun to appreciate the beauty and diversity of these creatures. Thanks to La Niña's big wet weather events, conditions have been favourable for many insects including mosquitoes which form a significant component of the dragonfly diet. The explosion of dragonfly numbers and feeding swarms presented a great opportunity to observe and learn a little more about them.

Let's start at the beginning,

Dragonflies were among the first insects to evolve and existed before dinosaurs, approximately 300 million years ago. The early dragonflies had a wingspan greater than 70 centimetres, possibly due to the higher concentration of oxygen in the atmosphere at the time. The dragonflies we see today have wingspans ranging from a tiny 15 millimetres to the 160 millimetre wingspan of the Giant Petaltail *Petalura ingentissima* found in Queensland and described as the world's largest dragonfly.

There are over 5000 species of dragonfly (including damselflies) worldwide. More than 320 species have been described in Australia including many species that are unique because of their unusual biology. About 80 species are known to occur in Victoria.

Dragonflies proper (Anisoptera) and damselflies (Zygoptera) are the only 2 sub-orders of the Order Odonata. The name of the order is based on the word 'odonatan' meaning "toothed one" in Greek and refers to their serrated mandibles.

Both adult 'dragons' and 'damsels' have slender legs, large compound eyes, small antennae and two pairs of narrow wings with a network of crossveins. Adults of the two sub-orders can be readily distinguished by their flight behaviour, wing shape, and position of the eyes as follows:



Tau Emerald *Hemicordulia tau* in flight, showing wings operating independently and perched, showing basket shape created by spiny legs used to capture prey. Photography © Lynda Wilson.

- Dragonflies are strong fliers with some species flying for extended periods even eating on the wing. Damselflies are more frequently observed perched as they are weaker flyers.
- The wings in damselflies are generally of a similar size and shape and for most species, are held vertically when at rest. Dragonfly fore- and hind-wings are dissimilar and are usually held horizontally or sloping backwards when at rest.
- Dragonfly eyes appear almost joined together on top of the head while eyes of damselflies are distinctly separate sitting either side of the head. *continued next page* ...

Part 1 of this story will focus on dragonflies while the more delicate damselflies will be addressed in our next newsletter.

Before we look at the glamourous colourful winged adult dragonflies, let's take a brief look at the fascinating lifecycle of these insects.

Female dragonflies typically lay their eggs by dipping their abdomens into, or very close to, fresh water. Eggs are laid either directly into the water, on or into the soft tissue of aquatic and semi-aquatic plants or into soft mud. Somewhere between 6 to 30 days after having been deposited the dragonfly eggs hatch into larvae around early to mid-summer.



Australian Emperor Anax papuensis in tandem as the perched female lays her eggs in water or on soft vegetation. Photography © Lynda Wilson.



Dragonfly larvae top view and underside view showing labium (used for striking and catching prey). Photography © Lynda Wilson.



Blue Skimmer Orthetrum caledonicum mating pair in 'wheel' position, the female recovering sperm from the male's thorax. Photography © Lynda Wilson.

In order to breath underwater, dragonfly larvae suck water into their abdomen and move it over their internal gills. This characteristic of breathing through their anus also allows them to propel themselves through water by discharging a jet of water from the anus.

Healthy rivers, lakes, ponds, wetlands, small pools and even roadside ditches are essential to supply the carnivorous dietary needs and provide the right water temperature and oxygen levels for dragonfly larvae to develop successfully. This sensitivity to environmental conditions means that dragonflies are rarely found in polluted water and they are important bioindicators of water quality.

> Dragonfly larvae prey on a range of aquatic insects such as mosquito larvae and other dragonfly nymphs, as well as tadpoles and even small fish. They catch their prey with mouthparts that have been modified to form a grasping hinged plate or mask called a labium which is usually armed with spines. As a stealth or ambush predator, this mask is folded beneath the head while at rest, but once prey is within reach, the mask is shot out at great speed to seize and direct the prey into the mouth.

While in their aquatic environment, the larvae pass through up to 15 instars, during which time the larvae progressively develop adult features. Depending on conditions, the larval phase may take weeks or years to complete, whereas the lifespan of an adult may be only one to three months, or a bit longer in warmer drier areas.

At the final instar phase, the larvae crawl out of the water, split their skin and after pumping blood through the newly formed wings metamorphise into the terrestrial adult form. This can take in the order of an hour to days.

As carnivorous adults, dragonflies will feed on a broad range of insects including mosquitoes, cicadas, flies, and other smaller dragonflies. A single dragonfly can eat hundreds of mosquitoes per day.

To catch their victim, they'll swoop in and form a net or cage with their legs, ensnaring and biting it to secure it, generally eating it while still flying.

To hunt in this way, they have evolved with incredible eyes containing 30,000 facets that enable multi-directional vision. With a reaction time of around 30 milliseconds they are able to see about 200 images per second – the human eye and brain can process about 60 images per second. To put that into context, the time it takes for a dragonfly to see, take off and catch a fly is about the same time it would take us to just initiate a reaction.

Speaking of speed, some of the larger dragonflies can reach flying speeds of 70 kilometres per hour. They are also highly agile, their four independently moving wings allowing them to hover, fly forwards, sideways, backwards and upside down.

The adult stage has a pre-reproductive period where the colour of the wings and body may change. As they mature, many dragonfly species will have developed bright colours and eye-catching patterns to attract a mate, and all this can vary considerably depending on age, sex, locality and habitat.

Males can become territorial and defend their turf against potential rivals. Once he has attracted and won the favour of a female, the male will grasp the female behind her head with his legs and then with appendages on his abdomen. They may continue to fly in this tandem position or land on a perch to mate.

The male transfers sperm to his secondary genitalia near the thorax (on abdominal segment 2). The pair form the 'wheel' position as the female bends her abdomen underneath his thorax to recover a packet of sperm that he has placed there. Sperm is transferred to the female and stored until she fertilises the eggs as they are being laid. The male may or may not remain joined with the female until she has laid her several hundred eggs.

As they are solar powered, requiring the warmth of the sun to be active, most dragonflies are active during the warmth of the day, though there are some Australian species that are more or less crepuscular meaning that they are mainly active at dawn or dusk. For the same reason, very few dragonflies are observed flying here in the winter months. Peak breeding season in our southern temperate climate is from November to March.

As the number of autumn-flying dragonflies decline and the recent La Niña years fade into drier conditions, it may be some years before we witness the vast numbers of dragonflies that we enjoyed in Central Victoria this past spring and summer. By maintaining healthy aquatic environments of all types and sizes, the next generation of dragonflies, some with larvae already developing and hunting, will emerge and take flight next spring.

References

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Wandering Percher *Diplacodes bipunctata*. Photography © Lynda Wilson.



Swamp Tigertail *Synthemis eustalacta*. Photography © Lynda Wilson.

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Special thanks to Reiner Richter for reviewing this article and for his diligent identification of all the Odonates entered into the INaturalist database (https://inaturalist.ala.org.au)

Fire mitigation or a log grab?

Words and images by Gayle Osborne

The *Flora and Fauna Guarantee Act 2019 (Vic)* (FFG Act) is the key piece of Victorian legislation for the conservation of threatened species and communities and for the management of potentially threatening processes. The Act's objectives aim to conserve all of Victoria's native plants and animals, but until a species is listed as threatened there is not a legal requirement to protect it. Protections are also dependent on controls being inserted in other regulations or specific protection measures agreed upon.

So, how can we be watching mass environmental destruction in the Wombat State Forest? The FFG Act is mainly designed for the conservation of threatened species and even then, it spectacularly fails to do so. VicForests' contractors, at the Wombat Creek Road site, were able to destroy a large area of the vulnerable Wombat Bush-pea *Pultenaea reflexifolia*. This destruction was reported to the Office of the Conservation Regulator (OCR) with no result.

The OCR monitors VicForests' timber harvesting activities and ensures that VicForests and its contractors comply with the *Code of Practice for Timber Production 2014*. The Wombat Bush-pea should have been protected, but it is not listed in the *Management-Standards-and-Procedures-fortimber-harvesting-operations-in-Vics-State-forests-2014* and therefore there are no prescriptions for its protection.

There is no help from the Commonwealth Government. On 30 March 2020 the government re-signed the West Victorian Regional Forest Agreement (RFA), which allows exemptions for protections for *Environment Protection and Biodiversity Act 1999* (EPBC) listed threatened species for forestry operations. This is on the basis that the Victorian government will protect them. Obviously, this isn't happening given that recent court case judgements have shown that a number of species, including Greater Gliders, are at risk of irreversible harm in many logging coupes.

In addition to the VicForests' salvage coupes, the Department of Energy, Environment and Climate Action (DEECA), using its authority under the *Forests Act 1958* and their obligation to prevent and suppress fire are contracting VicForests to salvage fallen timber. At this stage, this is the removal of every large wind-fallen log within 80 – 100 metres of roads and tracks in designated areas, with plans for some areas to have broad-scale log removal.

These works are not a RFA forestry operation, so the exemptions to the EPBC Act do not apply. However, DEECA claim that the FFG Act does not apply to these works, but that they will adhere to it. There is, also, no oversight of the DEECA storm recovery works by the Office of the Conservation Regulator, or seemingly anybody else. DEECA contracted VicForests to undertake their storm recovery program at the Brickhouse-Barkstead Road South site. All logs within 80 metres of the roads were removed. The salvaged logs are either being sold or used for commercial purposes. The bark and tree heads have been left behind and it would seem that this operation was driven by a requirement to supply logs rather than a mitigation of fire risk.

VicForests cannot operate in Special Protection Zones (SPZs) without an exemption from the OCR who have made assurances that exemptions would not be granted. However, DEECA will be able to contract VicForests to work in SPZs on the basis that the operations will reduce fire risk. Works have commenced in the Cobaw State Forest, which is almost wholly covered by a SPZ and where the wind damage was not exceptional.

There is no independent environmental oversight of the DEECA storm recovery initiative, with the Chief Fire Officer and the Secretary of the Department of the Environment seemingly having total power.

It is obvious that there is a requirement to reduce fire risk, but we have yet to see evidence that the works being carried out are anything other than a log grab to prop up jobs elsewhere in the state, including as far away as East Gippsland.

Large machinery on the Brickhouse-Barkstead Road log landing.



Wombat Forestcare Newsletter - Issue 63

Saving the Mountain Skink

Words and images by Gayle Osborne

The discovery of a family of Mountain Skinks *Liopholis montana* in the Wombat Forest in December 2020 was incredibly exciting. This was particularly interesting given that all previously know locations were in Alpine areas. Since that date, scientist Dr. Zak Atkins has located other populations and has collected genetic material to determine relationships between this outlying population and other populations. There is a high likelihood that the skink is inhabiting coupes earmarked for salvage logging and it has been recorded in areas that the Department of Environment, Energy and Climate Action (DEECA) has listed for fire recovery works and planned burns.

Liopholis montana occupies a range of habitats in the Wombat. It seems that their preferred habitat is in rocky patches in open woodland forest types, however they have been found where there is little or no rock. Until further surveys can be carried out, assumptions cannot be made regarding their habitat in the Wombat Forest.



Mountain Skink *Liopholis montana* emerging from under the log where it was captured on a motion-sensing camera two years earlier. Photography © Gayle Osborne.



Mountain Skink *Liopholis montana* briefly exposed as it travels along the sides of logs and under grassy tussocks. Photography © Gayle Osborne.

As Liopholis montana is now listed as nationally threatened under the federal Environment Protection & Biodiversity Conservation Act, Wombat Forestcare and the Victorian National Parks Association wrote to the federal Environment Minister, Tanya Plibersek, requesting that her department urgently intervene to protect the Liopholis montana.

Her department has responded that they understood that DEECA was doing a self-assessment. We were alarmed as we do not believe that DEECA has the resources, including appropriate scientists, to ensure that the *Liopholis montana* is protected from management activities including salvage logging and planned burns.

In February 2021 Wombat Forestcare volunteers captured images of *Liopholis montana* on one of their motion-sensing cameras and alerted DEECA staff to its presence in a proposed planned burn.

DEECA staff spent considerable time and effort to protect the skink and its habitat, however they decided that the vegetation type at our record did not match the habitat description in a research paper and did not protect the site.

The burn was conducted in autumn 2022, and recently we were able to visit the site. We were greatly concerned to see that a grader had done some work on the existing track and that rocky habitat, within 10 - 15 metres of the record, had been overturned. Although a small area around the record remains unburnt, the fire came within 5 - 10 metres of the sighting and much of the suitable surrounding habitat has been burnt. Planned burns in the Wombat Forest tend to encourage bracken regrowth, which would shade the skink's habitat, affecting the thermal environment.

We were very surprised to observe a Mountain Skink emerging from under the same log that we had recorded it on our camera two years previously. A three-hour search a week later did not locate any other Mountain Skinks, but apparently it is not uncommon to be unable to locate other skinks as they can be difficult to find.

The Mountain Skink is well camouflaged in its natural environment and can be easily missed in surveys. It is hard to imagine why this skink has not been found sooner, but when searching for it we find that it quickly disappears into a burrow and takes a very long time to re-emerge. Given that there are very few known locations of the skink in the Wombat Forest, assumptions cannot be made about its preferred the habitat at this

stage. The few existing records are not likely to reflect its distribution in the Wombat Forest.

This population is highly significant, given its large geographic separation from other known locations, and its conservation should have a high priority.

Liopholis montana is listed as Endangered, nationally, however the state government has failed to list the species under the FFG Act.

In October 2022, Minister Plibersek released the *Threatened* Species Action Plan: Towards Zero Extinctions saying that

Log life

"The need for action to protect our plants, animals and ecosystems from extinction has never been greater." However, we see a reluctance to intervene to ensure that *Liopholis montana* is properly protected in the Wombat Forest and that necessary research is carried out by expert scientists.

For further reading: Wombat Forestcare Newsletter 57 https://www.wombatforestcare.org.au/newsletters/ WombatForestcareNewsletter57_September_21.pdf

Fallen logs are a key component of stand structur

Fallen logs are a key component of stand structural complexity and have critical functional roles for forest biodiversity including:

- providing nesting and sheltering sites for biota
- providing foraging substrates for predators like snakes and predatory invertebrates such as velvet worms
- providing basking and hibernation sites for reptiles
- · facilitating animal movement

Photography © Gayle Osbo

- · providing places for key social behaviours
- acting as plant germination sites
- providing substrates to promote the growth of fungi
- providing mesic refugia for organisms during drought and/or fire, and contributing to heterogeneity in the litter layer and patterns of ground cover
- play a significant role in nutrient cycling in forests

Reference

Lindenmayer, D, Claridge, A, Gilmore, A et al 2002, 'The ecological role of logs in Australian forests and the potential impacts of harvesting intensification on log-using biota', *Pacific Conservation Biology*, vol. 8, pp. 121-140.



Expansion of Climate Adaptation under Hepburn Z-NET

The Hepburn Z-NET community-wide project was launched in 2019 and has been focused on emissions reduction activities in the Hepburn Shire in order to meet the target of zero-net emissions by 2030. Thanks to funding from DEECA, Hepburn Energy and Hepburn Shire Council are now working together to expand the scope to consider the necessary details of climate change adaptation. This project is an initial data mapping phase in order to make the place-based impacts known and noticeable, as well as the work of various stakeholders who have been working in the space such as Wombat Forestcare.

As we know, the climate is changing, and we need to make sure our community is ready to adapt to a future with more frequent and severe climate-related events like bushfires, storms, floods, droughts and heatwaves. The data mapping project will summarise the latest climate change modelling for Hepburn Shire; introduce the key concepts that underpin climate change adaptation; and identify the climate risks facing our community.

The community will have an opportunity to input key ideas in the coming months and Wombat Forestcare will share more information as it becomes available.

Determinants of Climate risk

- How climate hazards interact with hazard exposure and vulnerablility to form risk
- And how our response through adaptation and mitigation actions can manage and frame climate risk.





Wombat Forestcare

research • education • action

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** - <u>www.wombatforestcare.org.au</u>

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