Issue 57 - September 2021

Wombat Forestcare Newsletter

This spring we will visit a greatly changed Wombat Forest with many fallen trees from the destructive June storm. Access may be a little more difficult, but there will still be opportunities to go on nature walks. The wattles are blooming and birds are arriving to breed.
Gayle Osborne (editor) and **Angela Halpin** (design)

A new species for the Wombat Forest

Mountain Skink *Liopholis montana*

By Gayle Osborne

In December 2020, Monash University reptile researcher, Jules Farquhar, with his companions Wyn Russell and Nicholas Gale, discovered several individuals of *Liopholis montana* in the Wombat State Forest. They observed six adult and seven juvenile specimens active or basking on low rocks and logs.

Their recently published paper, "A significant range extension for the mountain skink *Liopholis montana* (Donnellan, Hutchinson, Dempsey & Osborne, 2002) on the Western Uplands of Victoria", details the detection of a population of Mountain Skinks along the Lerderderg River, west of Blackwood. This is a very exciting sighting as the known range for the Mountain Skink extended from the Australian Capital Territory to southern New South Wales to Victoria along the Great Dividing Range, with the western limit of the range defined by a record at the Upper Yarra Dam.

The Kilmore gap, a broad and low saddle in the Great Dividing Range between Wallan and Kilmore, separates the Western Highlands from the more mountainous Eastern Highlands. This record is the first for this species west of the Kilmore gap.

Plain-backed adult Mountain Skink *Liopholis montana* found in Wombat State Forest, Victoria.
Photography © Jules Farquhar.

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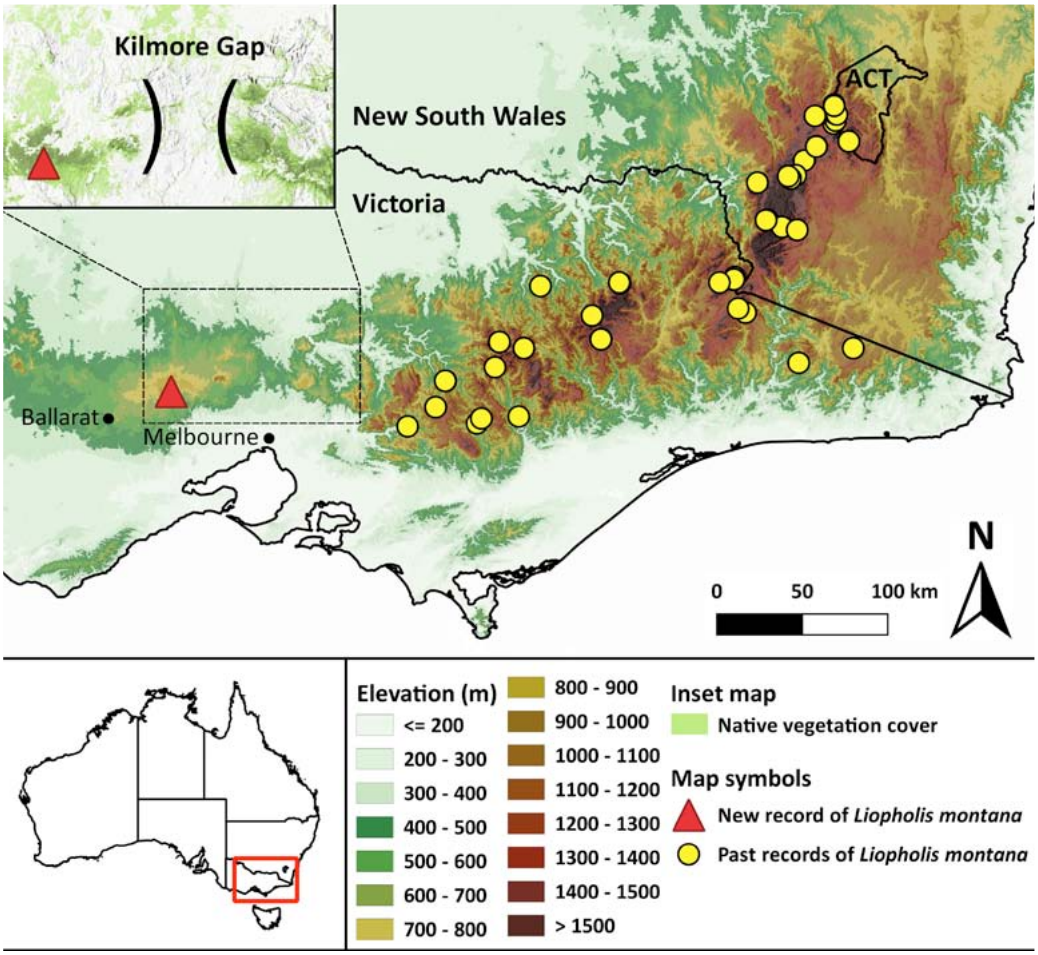
Patterned juvenile Mountain Skink *Liopholis montana* found in Wombat State Forest, Victoria. Photography © Jules Farquhar.



Elevation map of the Great Dividing Range in southeast Australia showing the new *Liopholis montana* locality on the Western Uplands and past records of the species obtained from the Victorian Biodiversity Atlas, BioNet Atlas, and Atlas of Living Australia (ALA). Source: Farquhar, J. E. et al. A significant range extension for the mountain skink *Liopholis montana* (Donnellan, Hutchinson, Dempsey & Osborne, 2002) on the Western Uplands of Victoria.

Another interesting detail is the altitude of this new discovery. To date, Mountain Skinks have only been found at elevations between 900m and 1800m, with the site on the Lerderderg River having an elevation of approx. 620m.

The Mountain Skink was only described in 2002 and has a scattered distribution, and is largely found in rocky habitats in subalpine woodlands or open dry forests. It is a medium sized, smooth scaled skink native to southeast Australia with a snout to vent length up to 111 mm. The basic colour is grey-brown and most skinks have a reddish brown upper surface. There is also a patterned morph, which is not as common. The juveniles have white spots alternating with dark stripes, which fade as they mature.

They construct deep burrow networks beneath rocks and live in colonies, which is uncommon in the reptile world and appear to form stable pair bonds. The females give birth to four young. Their diet is omnivorous and includes seasonal fruits.

Jules Farquhar, in an interview with the Ballarat Courier, spoke about the significance of this discovery. He said that these peripheral populations are usually genetically unique; they are in a very different environment, and may therefore be exposed to unique threats that the species might not be facing in other parts of its range.

"Genetic work has been done on *L. montana* in NSW, and it basically shows

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where they occur on different peaks, they're genetically divergent on different mountaintops."

Scientists at the Arthur Rylah Institute are undertaking genetic research to find out whether the Wombat State Forest population is an 'evolutionary significant unit'.

Second location

For a number of years, Wombat Forestcare volunteers have been moving motion-sensing cameras through a large area south west of Blackwood and were amazed to find that a Mountain Skink was captured by one of the cameras. There are now two verified locations for this species in the Wombat Forest.

There are a number of other camera locations with unidentified skink images that will need to be checked in the warmer months, however, they do appear to be the relatively common Southern Water Skink *Eulamprus tympanum*.

Further targeted searches for the skink will give our volunteers a great opportunity to spend some time in the heathy forests south of the Lerderderg River. This will also present the opportunity to examine the rocks and vegetation and compare this with the granite boulders, slabs and rock screes and associated vegetation of the Alpine locations.

Conservation status

In Victoria, the Mountain Skink was listed in the *Advisory List of Threatened Vertebrate Fauna in Victoria: 2013* as 'Data deficient'. The advisory list has recently been replaced by a single operational list called the *FFG Threatened List*, and does not include the Mountain Skink.

However, in a recent development, the Australian Government's Threatened Species Scientific Committee has made a preliminary determination that "the list referred to in section 178 of the EPBC Act be amended by including *Liopholis montana* in the list in the Endangered category." A submission process is open until 29th September 2021.

The main reasons for this determination are the restricted area of occupancy of the Mountain Skink, and the severe fragmentation and ongoing loss and degradation of its habitat.

One of the failings of the listing process is that a population of a species might be common in many parts of the state or the country, but extremely rare regionally. Here we have a species, which at this stage is only known from two locations in the Wombat Forest, and as it is not listed as threatened, does not need to be protected from a range of management activities such as track or road works or planned burns.

It is to be hoped that the Mountain Skink is afforded the protection that will come with being listed as 'Endangered'. This is particularly important as these populations are within proposed planned burns.

Threats

Cats and foxes are major predators of reptiles and Mountain Skinks are particularly vulnerable due to the predictability of their emergence from permanent burrows. Motion-sensing cameras deployed south west of Blackwood have detected a large number of foxes in the vicinity of the second location, which could constitute a significant threat to their survival.

Planned burns may also present a threat as they can significantly reduce the amount of woody debris and fallen logs. The authors of the range extension publication noted that "At the *L. montana* site, coarse woody debris was abundant and we observed many *L. montana* basking on logs, sheltering within log crevices, or retreating to the surface of litter beneath logs." Planned burns can also cause a change in vegetation structure and may produce thicker regrowth that could shade basking sites.

Road and track construction and maintenance that displace rocks as well as rock stacking threatens the refuge sites of these skinks.

Recording species

In his interview in the Ballarat Courier, Jules Farquhar discussed the importance of the community using apps such as iNaturalist to register sightings:

"I'm becoming increasingly passionate about the importance of documenting biological phenomena, even if it seems relatively trivial, because it all adds up to more serious scientific endeavours."

"I wonder how often do amateur naturalists see this and don't document it - I'm writing a paper at the moment entirely predicated on iNaturalist records."

Apps such as iNaturalist are easy to use and are great tools for learning, as if your photo is clear, you are likely to have an expert identify your species. Even photos of common species help scientists map their distribution.

Wombat Forestcare's motion-sensing camera project has produced some great results, including new records for many species, but the Mountain Skink record is one of the most exciting.

Once again, we have an example of a very rare or threatened species being found in the Wombat Forest, highlighting the necessity to manage the Wombat for the conservation of its species. ■

References

Farquhar, J.E., Russell, W., and Gale, N. (2021): A significant range extension for the mountain skink *Liopholis montana* (Donnellan, Hutchinson, Dempsey & Osborne, 2002) on the Western Uplands of Victoria. Herpetology Notes, volume 14: 877-882 (2021) (published online on 09 June 2021)

http://www.environment.gov.au/system/files/consultations/71ccbcf3-70fd-4517-8d55-6499eb748834/files/consultation-document-liopholis-montana.pdf

https://www.thecourier.com.au/story/7364272/what-are-you-doing-here-new-population-of-mountain-skinks-discovered-in-forest/

Echidnas: ecosystem engineers

By Tanya Loos

Echidna train. Photography © Patrick Kavanagh.

In late winter and early spring, Wombat Forest residents may notice an increase in echidna diggings, as on warm north-facing areas the virgin queens of Meat Ants *Iridomyrmex* are closer to the surface. These queen ants are a rich source of fats, and most welcome for echidnas coming out of the lean winter months.

Short-beaked Echidnas *Tachyglossus aculeatus* are well known for eating ants and termites - but they are not strictly myrmecophagous. A truly myrmecophagous mammal, such as anteaters or pangolins, has over 90% of their diet composed of ants and termites. As well as ants and termites, echidnas also prey upon moth and beetle larvae, and earthworms.

The Echidna CSI project asks citizen scientists to send in their echidna sightings from across Australia, via a smartphone app of the same name. This data will build up a much better picture of their numbers and distribution. The project also asks echidna enthusiasts to send in any echidna scats for analysis, as the project research team are investigating the DNA and hormones within echidna scats: "DNA will indicate the echidna diet, population genetics and microbiome while hormones can show if echidnas are stressed in particular environments and help us better understand their reproduction".

This kind of scientific detective work has already thrown up some surprising findings; recent DNA analysis of the echidna gut microbiome adds two other dietary items to the usual insect fare - fungi and even plants!

Foraging for food by digging is assisted by the echidna's powerful musculature, long claws and their uniquely backward facing hind feet. Echidnas dig in soil, and also move surprisingly heavy rocks and logs to get to their tiny quarry. One study estimated that echidnas spend 12% of their time digging and had the potential to move 204m of soil per year. Our spiky little ecosystem engineer!

We have seen the importance of Superb Lyrebirds in moving large amounts of soil and leaf litter, and also well studied is the role of bandicoots. Here in the Wombat Forest our remaining ecosystem engineers are echidnas, and of course wombats, doing the digging - a vital action for ecosystem function.

The characteristic digging pits of echidnas (often with a little round snout-hole impression at the deepest point) create microclimates and diversity in the soilscape. A study in the arid and semi-arid areas replicated the size and shape of echidna diggings and found that these pits had greater rates of seed germination and leaf litter decomposition than in soil without diggings.

Echidnas are Australia's most widespread mammal, ranging from alpine areas to deserts, and even beach habitats. As long as there is food to eat, and sites to shelter in, the echidna can survive. They are absent from cleared farmland, upland rainforest, and the deepest fern gullies. This means that their distribution would be patchy through the Wombat Forest region. With a home range of 30-40 hectares on average one echidna can cover a wide variety of habitats. Interestingly they are not put off by urban areas and are often seen in people's backyards. Echidnas are surprisingly long-lived for such a small mammal - 30-40 years in the wild, and over 50 years recorded in captivity!

I have been living in the Wombat Forest for 20 years - and over that period we have seen the Millennium drought, the Black Saturday fires, the La Nina flooding event of 2010-2011, year after year of

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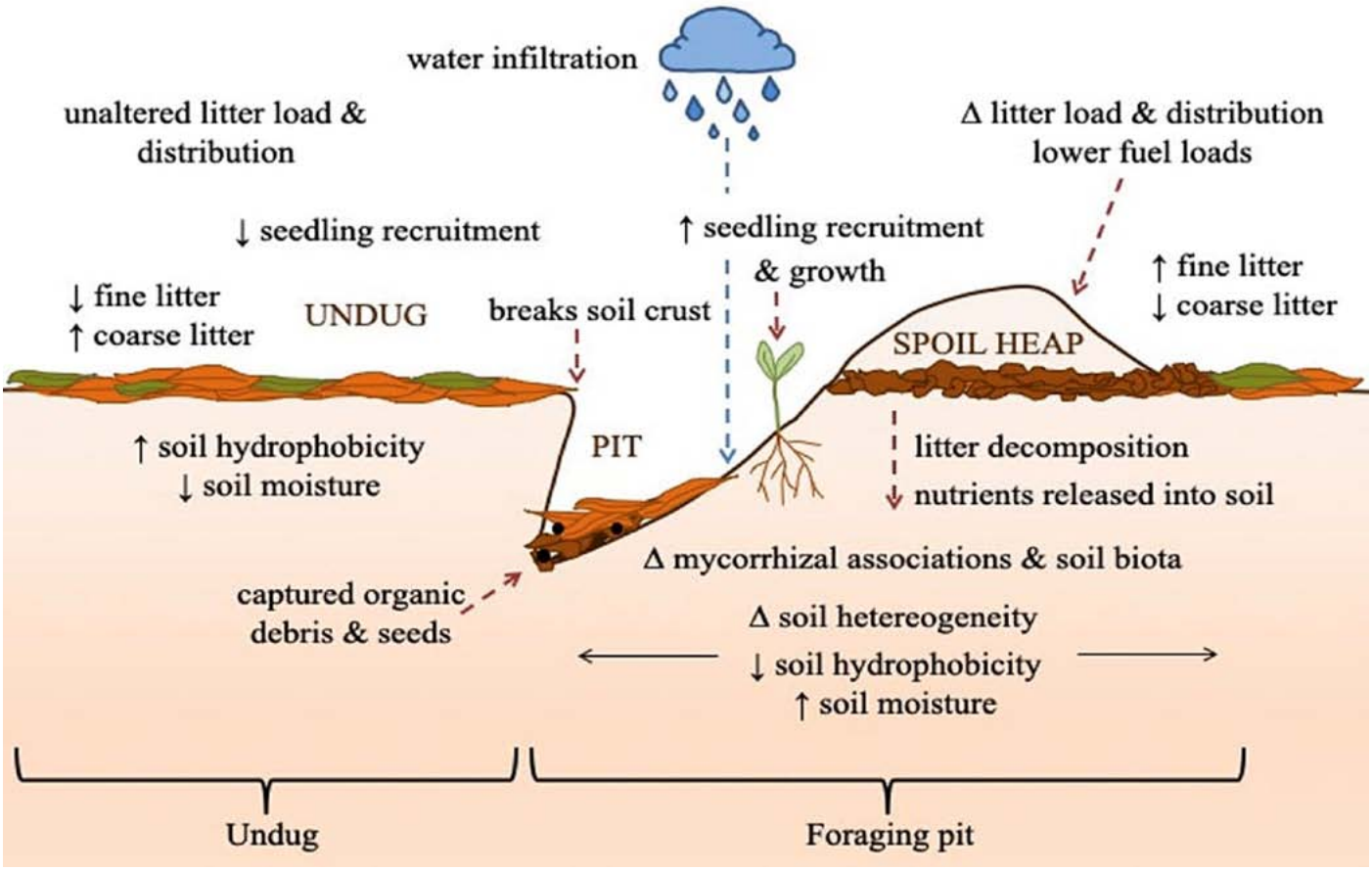

How bandicoot digs affect soil.
https://theconversation.com/one-little-bandicoot-can-dig-up-an-elephants-worth-of-soil-a-year-and-our-ecosystem-loves-it-132266

"planned burns" and most recently the severe windstorm that devastated patches of the forest with extensive tree fall and uprooting, which Gayle wrote about in the last issue.

To some extent, echidnas can handle droughts and the associated lack of food as they have a very low metabolic rate, in fact the lowest of all mammals. This low energy requirement means that echidnas can survive lean periods, and their habit of going into a kind of hibernation called torpor also helps conserve resources.

The echidna anti-predator strategy is to use those powerful muscles and backward facing hind feet to dig directly down into the soil - and this same movement is used to surprising effectiveness to swim when the need arises - such as during heat waves or floods.

Their anti-predator hiding strategy is also used in the case of wildfire or planned burns. The soil is an excellent protector, but if the echidna does not dig down deep enough the spines can be burnt. The spines are made of keratin, just like hair, and can be burnt down to a stub.

Individual survival chances of echidna in fires are pretty good - but what is more worrying are the changes that occur as a result of the burns - mainly the destruction of fallen logs and other shelter sites that are so essential to echidnas. And like all animals post-fire, their survival beyond the fire event relies upon a plentiful supply of food. If the planned burn area is too large then this means that echidnas have to rely solely on burnt areas to find food.

The microbiome of an echidna's gut is very different depending upon whether the animal is foraging in burnt or unburnt habitat - but what is not clear is the long-term effects of fires on echidna health and survival.

I watched Echidna CSI researcher Tahlia Perry give a fantastic talk online - and when someone asked whether echidnas were factored into pre-burn surveys Tahlia replied that they were not, but most probably should be!

Each of our long-lived Wombat Forest echidnas deserves a long and healthy life, with a rich complex understory habitat, so they can continue providing those vital ecosystem functions as they dig for food - yet another reason to fine-tune our planned burn regime. ■

References

One study:
https://research.usc.edu.au/esploro/outputs/abstract/Theprivate-life-of-echidnas-using-accelerometery-and-GPS-to-examine-fieldbiomechanics-and-assess-the-ecological-impact-of-a-widespread-semifossorial-monotreme/99451052602621

Ecosystem engineers:
https://theconversation.com/losing-australias-diggers-is-hurting-our-ecosystems-18590

Superb lyrebirds:
https://esajournals.onlinelibrary.wiley.com/doi/10.1002/eap.2219

Arid study:
https://doi.org/10.1016/j.catena.2021.105166

Painted Honeyeater

By Trevor Speirs

When reading old bird books and nature reports you get the impression that the endemic Painted Honeyeater *Grantiella picta* has long been considered rare in its occurrence. At the turn of the 20th century they had only been recorded in NSW and Victoria and it wasn't until 1913 that they were observed further afield in the Northern Territory. Today it is believed their greatest numbers and the majority of breeding occurs along the Great Dividing Range. The Victorian Government recently reviewed the FFGA and the Painted Honeyeater's status remains unchanged and it is still regarded as vulnerable to extinction. The federal EPBC Act also lists the species as vulnerable.

Painted Honeyeater about to deposit mistletoe seed on branch. Photography © Trevor Speirs.

John Gould, the famous English ornithologist and naturalist, first named and described this handsome honeyeater in 1838 from specimens in his possession while still in England. He sailed for Australia shortly after, and during his epic forays located a breeding pair with young in inland NSW. This enabled Gould to amend his initial observation of a yellowish bill to that of a fleshy pink one. Perhaps his dead

Drooping Mistletoe *Amyema pendula*. Photography © Gayle Osborne.

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specimen was a juvenile or an adult whose bill had faded. Gould's original classification of *Entomophila picta*, the specific name picta meaning paint or embroider, was subsequently changed to *Grantiella picta* early in the 20th century. These birds apparently impressed Gould and it's easy to see why, as they are always a highlight of a day's birdwatching should you catch a glimpse of one. That is not always easy as they are quite elusive and only about 160mm in length. Fortunately having a specialised diet, made up primarily of the fruit of the mistletoe, helps to narrow down where to search for them. Adult male Painted Honeyeaters are black above and white underneath with black flecks on the sides. The female's upperparts are a little duller and it is not as flecked below, but both adult sexes have the pink bill and bold yellow markings on the wing and tail.

The section of the Wombat Forest, NW of Hepburn, and especially where Red Stringybark *Eucalyptus macrorhyncha* is growing, is a likely place to look for mistletoe. However, there are many quiet country roads and lanes close to this part of the forest where you can find both acacias and eucalypts hosting mistletoe in profusion. Another clue to a Painted Honeyeater's location is their very distinctive sing-song two syllable call, the first syllable usually higher than the second, although it can occasionally be the reverse. Old timers knew the bird as Georgie and it's easy to see why. The oft repeated two note refrain of "*Geor-gee*", *Geor-gee*, *Geor-gee*" really is a call that is very memorable once heard.

The timing of the southern migration and subsequent breeding of the Painted Honeyeater is closely related to the mistletoe's fruiting and in our part of the world this is around mid-spring into summer. Breeding birds should have arrived in this neck of the woods by December and will have headed north by the end of April. Although they also consume nectar and insects, it is almost exclusively the fruit of the mistletoe genus *Amyema* that makes up the bulk of their diet. There are 36 species of *Amyema* in Australia, and on reading John Walter's very informative article on mistletoes in the Wombat Forestcare newsletter, issue 27, I now know there are four *Amyema* species found in our district. I have only seen Painted Honeyeaters in mistletoe on eucalypts in this region, so I assume these mistletoes are the species *A. pendula* or *A. miquelii*; both use eucalypts as hosts. Aside from Red Stringybark, look for this mistletoe on Yellow Gum *E. leucoxylon* and to the north of Newstead, Red Ironbark *E. tricarpa* ssp *tricarpa*. The outer foliage of the Red Stringybark is a particularly favoured nesting site where a very flimsy nest is built. Of the other two *Amyema* species found here *A. pressii* and *A. quandang*, these are mainly found on acacias, the latter also associated with Painted Honeyeater breeding sites.

Large scale clearing of woodland, Box-Ironbark forests in particular, is one reason for the Painted Honeyeater's scarcity, and there is also a theory that competition from the Mistletoebird *Dicaeum hirundinaceum* is another factor. Mistletoebirds are a late arrival to Australia on the evolutionary time scale and feed on a greater variety of mistletoe fruit than the Painted Honeyeater. Both species have an anatomy that allows the seed of the mistletoe fruit to pass through the body and stick to a tree branch, where germination could occur. Mistletoe seed is very sticky, and whereas the Painted Honeyeater uses its bill to remove the seed from its body the Mistletoe bird simply wipes its "backside" on the future host branch. Either way, the result is the same and both species are good examples of that old adage and Blues music lament "you're going to reap just what you sow". ■

References

Hindwood, K.A. (1935) The Painted Honeyeater, Emu-Austral Ornithology 34 (3), 149-157.

Garnett, S., 1992 Threatened and Extinct Birds of Australia. RAOU Report Number 82. Royal Australasian Ornithologists Union, Moonee Ponds.

Drooping Mistletoe *Amyema pendula*. Photography © Gayle Osborne.

Vegetation of the Wombat Forest

Riparian Forest (EVC 18)

By Murray Ralph

The Wombat Forest contains a diverse range of native flora and fauna that occur in over 30 distinct plant communities. Plants communities are groups of plants that usually grow together as they favour similar environmental conditions such as underlying geology, soil type and fertility, aspect, soil moisture and slope.

Each plant community in the Wombat Forest provides different types of habitat and resources for native fauna to varying degrees.

Most plant communities in Victoria have been formally described and are referred to as Ecological Vegetation Classes (EVCs).

Riparian Forest occurs along the banks and flatter terraces of rivers and some larger creeks in the Wombat Forest, such as the upper reaches of the Lerderderg River and sections of the Loddon, Coliban, Campaspe and Werribee Rivers. On the higher slopes of the Great Dividing Range, it also occurs in the base of gullies leading into rivers and creeks.

Soils in these areas are sedimentary, fertile, regularly inundated and moist for most or all of the year.

The overstorey is up to 30m tall but can be patchy in cover. Manna Gum *Eucalyptus viminalis* and Messmate E*ucalyptus obliqua* are dominant. Narrow-leaved Peppermint *Eucalyptus radiata* is also present. Tall Blackwoods *Acacia melanoxylon* form a lower tree layer. There are approximately twenty large trees per hectare.

Tall Eucalypts form the overstorey above the Lerderderg River. Photography © Gayle Osborne.

The shrub and small tree layer is very variable. Along, and near stream banks, shrubs can be dense, but in other areas tends to be more scattered to sparse.

Prickly Currant-bush *Coprosma quadrifida*, Hazel Pomaderris *Pomaderris aspera* and Prickly Moses *Acacia verticillata* are common. Victorian Christmas Bush *Prostanthera lasianthos*, Showy Daisy-bush *Olearia lirata* and Common Cassinia *Cassinia aculeata* can also be present. Mountain Correa *Correa lawrenceana* var. *latrobeana* is only known from a few locations in the Wombat Forest. It can be found in damp and shaded areas along the upper reaches of the Lerderderg River.

Blackwoods, shrubs and ferns along the Lerderderg River. Photography © Gayle Osborne.

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Silky Fan-fern *Sticherus tener*. Photography © Gayle Osborne.

Mountain Correa *Correa lawrenceana* var. *latrobeana*. Photography © Gayle Osborne.

Hazel Pomaderris *Pomaderris aspera*. Photography © Murray Ralph.

Ferns are a key component and characteristic of Riparian Forest. Fishbone Water-fern *Blechnum nudum* often forms dense and extensive patches. Other ground ferns include Hard Water-fern *Blechnum wattsii*, Mother Shield-fern *Polystichum proliferum*, Bat's Wing Fern *Histiopteris incisa*, Common Ground-fern *Calochlaena dubia* and Silky Fan-fern *Sticherus tener*.

Soft Tree Fern *Dicksonia antarctica* and Rough Tree Fern *Cyathea australis* would have once been common, but following years of logging, are now far less numerous.

Sedges and rushes including Spiny-head Mat-rush *Lomandra longifolia*, Tall Sedge *Carex appressa*, Tall Sword-sedge *Lepidosperma elatius* and Red-fruit Saw-sedge *Gahnia sieberiana* also grow in damper areas and along stream banks.

Patches of native grasses and native herbs also occur interspersed with ferns in drier areas.

Common grasses include Common Tussock-grass *Poa labillardierei*, Forest Wire-grass *Tetrarrhena juncea* and Slender Tussock-grass *Poa tenera*. Common native herbs include Bidgee-widgee *Acaena novae-zelandiae*, Prickly Starwort *Stellaria pungens*, Kidney Weed *Dichondra repens*, Cinquefoil Cranesbill *Geranium potentilloides*, Tasman Flax Lily *Dianella tasmanica* and Matted Pratia *Lobelia pedunculata*.

A diverse array of fungi and mosses also grow in the damp and shady conditions of Riparian Forest.

As the soils are fertile and water is present for most of the year, Riparian Forest provides very high quality habitat for a wide range of native fauna.

Due to higher soil fertility the leaves of Eucalypts in Riparian Forest contain higher levels of nutrients, providing a critical food source for species such as Greater Gliders and Koalas that solely eat Eucalyptus leaves. Tree hollows, high in the canopy, provide breeding sites for many arboreal mammals and native birds.

The multi layer tree canopy and occasionally dense shrub layer also provides habitat for a wide range of bird species. The damp and often dense understorey provides habitat for various ground dwelling mammals, frogs and reptiles.

Riparian Forest has Bioregional Conservation Status of 'vulnerable' in Victoria based on the pre-European extent that remains and the current threats.

The current condition of Riparian Forest in the Wombat Forest varies. Although many areas are in very good condition, other areas have been impacted by weed invasion, feral animals, recreational activities, fuel reduction burning and road construction and maintenance. ■

The role of flies

Words and images by Gayle Osborne

When we think of pollination by insects, we immediately think of bees, but flies are known to be just as efficient as flower pollinators. Most of the flies found on flowers appear to be pollen feeders. In the process of feeding, they become covered in pollen and transfer it as they feed on other flowers.

Flies are not immediately endearing and we mainly think of irritating bush flies, maggots in food or the nasty bite from a March fly. However, many are particularly attractive and their role as pollinators is important for biodiversity.

Some flies are parasitoids, laying their eggs in or on other insects. When the eggs hatch, the larvae consume the bodily fluids or the internal organs of their prey. This helps to keep nature in balance and can be particularly important when some insects, such as aphids, reach pest proportions.

Flies and their larvae are scavengers, helping to break down decomposing organic matter.

The CSIRO estimates that there are about 30,000 species of flies in Australia, all playing their part in maintaining an ecological balance. ■

Robber fly (Family Asilidae).

Robber fly (Genus *Daptolestes*).

Common Drone Fly *Eristalis tenax*.

Native Drone Fly *Eristalinus punctulatus*.

Genus *Rutilia*.