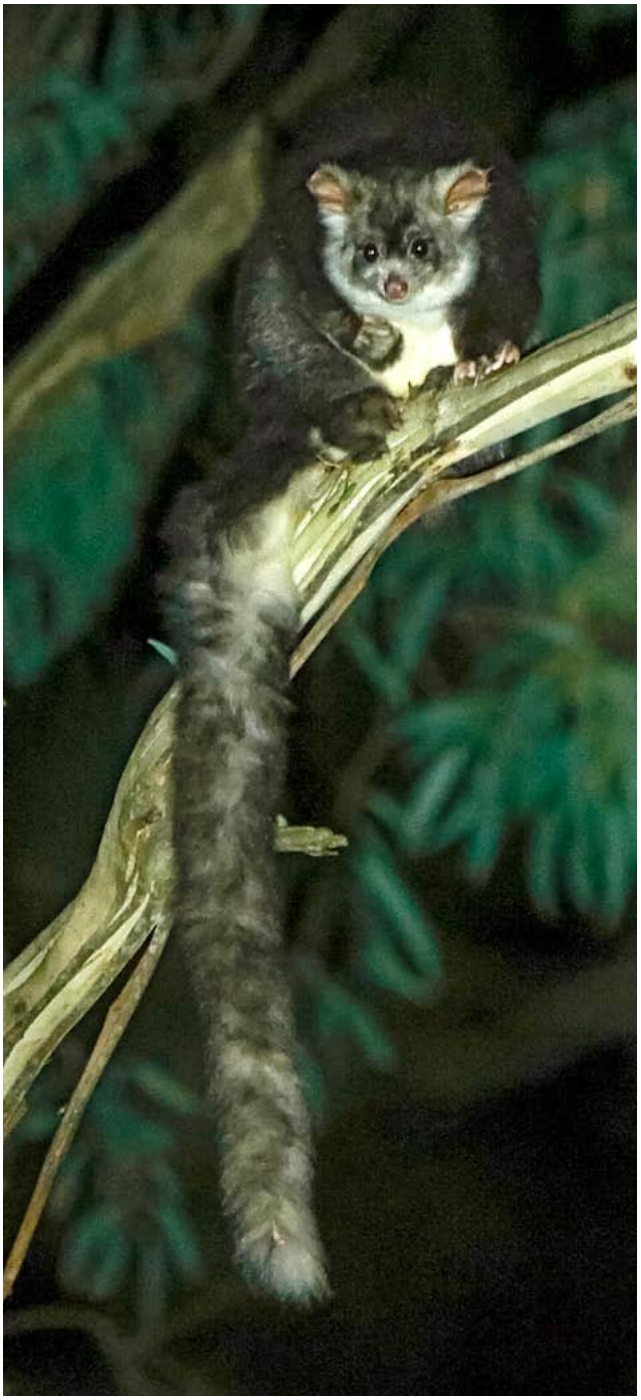
Issue 46 - December 2018

Wombat Forestcare Newsletter

Welcome to our summer edition. To our great delight, spotlighting for Greater Gliders has revealed their presence in previously undocumented locations in the Wombat. It is a perfect time for bird watching in the Wombat's lush gullies. **Gayle Osborne** (editor) and **Angela Halpin** (design)



Greater Glider image taken in the Wombat Forest as part of a UCLN Spotlight on Species survey.
Photography © Elizabeth Parsons
http://www.uppercampaspelandcare.org.au/about-us/spotlight-on-species/

Wombat Forest's Greater Gliders

By Gayle Osborne

Greater Gliders *Petauroides volans* occur in the eucalypt forests along the Great Dividing Range from northern Queensland to the Wombat Forest, which is the westernmost edge of their range. Throughout their range there have been sharp declines in their numbers, to such an extent that they have been listed as vulnerable at a State and Commonwealth level.

A large-scale study in the Central Highlands of Victoria (Lindenmayer et al. 2011) in the period 1997 to 2010 showed an 8.8% decline per year. Moreover, Greater Gliders were not recorded in surveys of any sites that were burned in the 2009 wildfire.

Drought, timber harvesting, wild fires and habitat fragmentation were all found to have impacts. Other studies also record a scarcity of Greater Gliders in areas where they were formerly common.

In the Booderee National Park (NSW), Greater Glider numbers have decreased significantly since 2004, with none recorded since 2007. It is likely that they are now extinct in this area. This decline cannot be attributed to wildfire, logging or habitat fragmentation. A possible explanation is predation by forest owls.

There are a number of populations of Greater Gliders in the Wombat Forest, however, it is impossible to say whether these populations are increasing, stable or declining as there have not been any long-term surveys. These populations appear to be fragmented. If this is the case, the long term fitness and survival of Greater Gliders could be compromised by a lack of genetic diversity and structure due to the effects of genetic drift and reduced gene flow.

Research by Prof. David Lindenmayer and other scientists has shown that Greater Gliders, due to their large body size, need large hollows for shelter and breeding. Large hollows generally occur in larger trees, which may also provide better insulating qualities and enable the gliders to more easily volplane into the surrounding forest.

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Juvenile Greater Glider looks out from its hollow. Photography © Gayle Osborne

Individual Greater Gliders are known to use a number of hollows in trees (dens) within their home range and move between them frequently.

Much of Prof. Lindenmayer's research has been carried out in wet mountain ash forests. Although some species of eucalypts such as Mountain Ash take 120 years to start developing hollows, the eucalypt species in the Wombat, especially Mountain Grey Gums in the east of the Wombat, have produced many large hollows in 100 years or less. Many of the eucalypt species in the Wombat are less sensitive to fire than species like Mountain Ash and may survive repeated burns.

In the Wombat Forest, we often see Greater Gliders emerging from very small hollow openings in trees that often are not particularly large, however, the actual hollow must be substantial.

Despite the low numbers of Greater Gliders in some areas of their range, in the Wombat, we have seen approximately eight gliders in a distance of about 800 metres at a number of sites. On one site we saw a female with young in her pouch and have seen two juveniles emerging from hollows, which we consider a positive sign.

It seems incredible that Greater Gliders have managed to survive in the Wombat given that by the 1880s most of the Wombat Forest had been logged. There must have been small pockets of untouched forest from which they have now recolonised the regrowing forest.

In the Wombat, Greater Gliders are found in eucalypts along creeks and rivers where the trees were protected in the last round of logging and the soil is more fertile.

One of the threats to the survival of Greater Gliders is planned burns and given the precariousness of their situation, we consider that all areas containing populations of Greater Gliders should be excluded from the burn program until there is scientific evidence that these burns will not affect glider survival.

The Australian Government's central piece of environmental legislation is the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). It provides a legal framework to protect threatened species. The EPBC conservation advice for Greater Gliders lists their first Primary Conservation Action as "Reduce the frequency and intensity of prescribed burns."[1].

Spring and autumn burns are planned for one of the Fire Effects Study Area (FESA) research sites; these are not to reduce risk, but to monitor the effects of repeated burning. This site has a significant population of Greater Gliders and has previously undergone a number of burns with the loss of a considerable number of hollow-bearing trees.

Although the gliders are found on this previously burnt site, it cannot be concluded that the burns did not seriously affect their population. These gliders could have migrated from an unburnt area.

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There are five FESA sites in the Wombat Forest and each one is divided into five areas; spring burn every 3 -5 years, spring burn every 10 years, autumn burn every 3 -5 years, autumn burn every 10 years and an unburnt control section.

We consider that there is a need to re-assess the value of continuing to burn these FESA sites and will be requesting details of the monitoring that is being carried out.

If these burns are to go ahead, it is critical that a scientifically designed monitoring program is implemented to provide some information to assess the impact on this threatened species and its habitat.

There are other FESA sites with recorded Greater Gliders, but we have not been able to carry out spotlighting surveys at this stage.

The Department of Environment, Land, Water and Planning has not developed its promised prescription for the protection of Greater Gliders in planned burns and the only prescription for the protection for the gliders in the Wombat is that burns are to be low intensity, which is clearly inadequate. It is imperative that scientists with the appropriate qualifications develop prescriptions before these burns proceed.

As an additional measure, the fire crew will rake debris away from the base of trees that are close to tracks and have been observed to have gliders emerging from hollows. This reduces the risk of them catching fire, however, within the burn, a percentage of trees, including hollow-bearing trees, will be lost to fire.

As we have observed, spring is when the single young is carried in the mother's pouch and later on her back. At about six months of age the juvenile is left in the hollow while the mother feeds. It would seem that spring is a critical time for an absence of disturbance.

This should not be how far can we push, before "oops" they seem to have gone. Given the other pressures gliders may experience; heat stress due to increased temperatures and possible changes in nutrient levels of eucalyptus leaves due to increased carbon dioxide, greater care needs to be taken to ensure their survival. ■

1. http://www.environment.gov.au/biodiversity/threatened/species/pubs/254-conservation-advice-05052016.pdf.

Ref: Lindenmayer, D, Wood, J, McBurney, L et al 2011, 'How to make a common species rare: A case against conservation complacency', Biological Conservation, vol. 144, no. 5, pp. 1663-1672.

http://www.environment.gov.au/biodiversity/threatened/species/pubs/254-conservation-advice-05052016.pdf.

Going to Seed

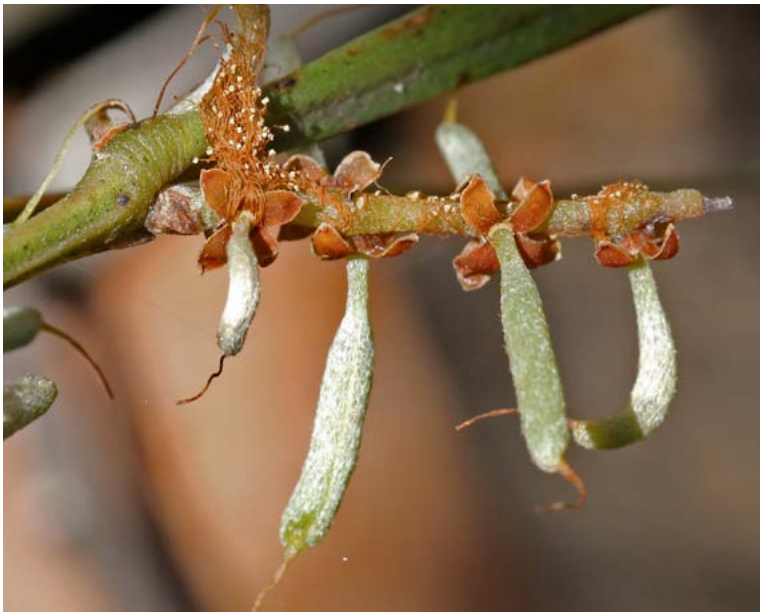
By Murray Ralph

Most native plants rely on regularly producing seed to ensure their ongoing survival. In the Wombat Forest it appears we have two species that either do not produce seed or produce it very rarely and in small quantities. Both species regularly produce flowers.

One species, the Wombat Leafless Bossiaea *Bossiaea vombata* only occurs in the Wombat Forest, has a very limited distribution and a very small population size.

In this case, it is likely the species has a very low genetic diversity due to the very low number of individual plants. As a result it has lost the ability to produce fertile seed despite producing many seed pods. It spreads by suckering.

The other species, Narrow-leaf Wattle *Acacia mucronata* has a wide distribution across southern Victoria, occurs in numerous places in the Wombat Forest, often with many individual plants. The plants also produce suckers and resprout from roots following fire.



Narrow-leaf Wattle seed pods. Photography © Gayle Osborne

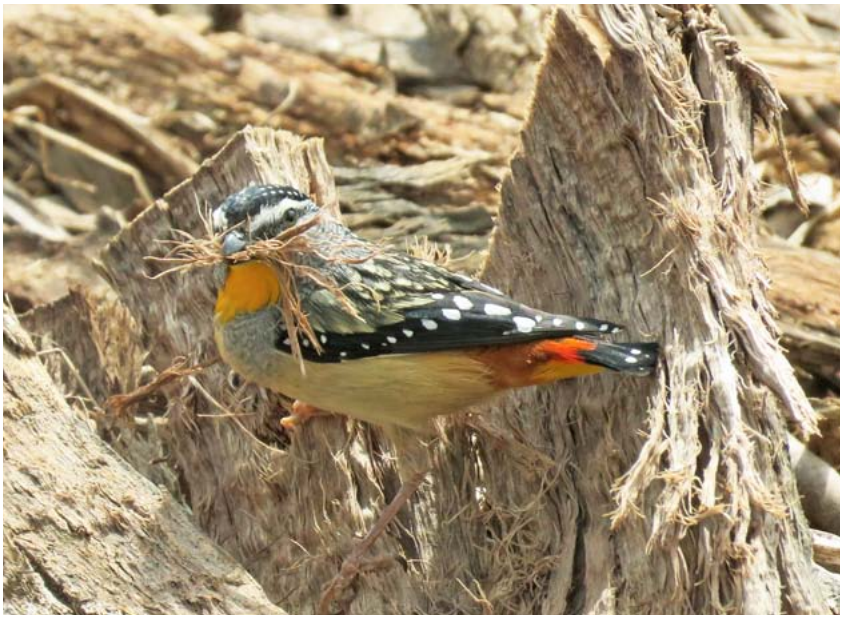
However, in the Wombat Forest, it appears to very rarely produce seed pods and it is still unknown if these pods produce viable seed. A few plants with seed pods were seen west of Blackwood last month.

This is a mystery that may not be solved until research is undertaken on the genetics of the Wombat Forest population. ■

Spotted

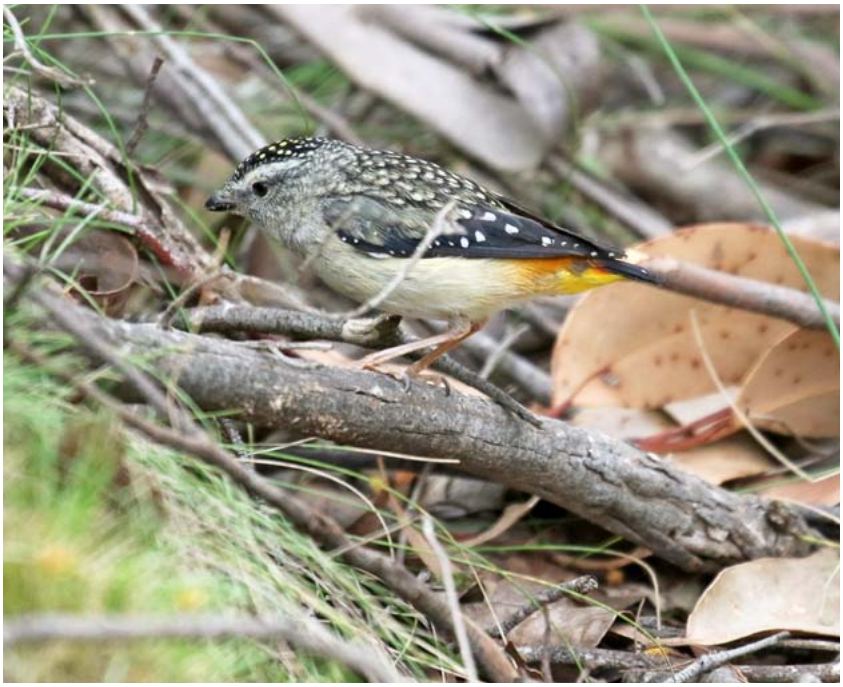
By Trevor Speirs

Early Australian birdwatchers knew the Spotted Pardalote *Pardalotus punctatus* by the name of Diamond-bird for very obvious reasons. Another less complimentary name was Headache-bird, and anyone in the vicinity of a breeding pair this spring might agree this was an accurate description. Like their cousins, the Striated Pardalote *Pardalotus striatus*, the Spotted Pardalote's two-note call, quite loud and far carrying for such a tiny bird, starts early and goes for hours throughout the day as they forage in the treetops for scale insects and lerp. Pardalotes belong to the group of birds known as "leaf gleaners", with their bills perfectly adapted for chipping lerp off eucalyptus leaves.



Male Spotted Pardalote collects nesting material. Photography © Trevor Speirs

Lerp, modified excrement from aphid-like insects, is a good source of carbohydrate and sugar and is an important food source for pardalotes and other small birds like thornbills and honeyeaters. Various honeyeater species are well known for their aggressive behaviour towards each other, particularly when defending productive food areas. Pardalotes can also be targeted by honeyeaters, especially from mid-winter when feeding activities increase in preparation for breeding. White-naped, Yellow-faced, White-plumed and Yellow-tufted Honeyeaters are species found in the Wombat and surrounds that are known to attack pardalotes. I remember once reading that a temporarily lost bushman in Victoria ate lerp and found it quite tasty and satisfying, though I'd be surprised to see it take off on the local café scene any time soon.



Female Spotted Pardalote inspects a site for a nest. Photography © Gayle Osborne

Whereas Striated Pardalotes use both tree hollows and earth tunnels for breeding, Spotted Pardalotes only build their bark and grass-lined nests at the end of a tunnel, which can be in a creek bank, another type of earthen embankment, sand heap or the like. They have even been known to use hanging baskets around houses. The circular tunnels can sometimes extend up to 1.5 metres in length, with dirt excavated by the bird's feet, the process leaving two distinct grooves along the bottom of the tunnel. Generally about 40mm in diameter, although they can be wider, tunnel sites are usually towards the top of banks, where the soil is softer, but not soft enough that it will crumble and collapse. Interestingly, when the Striated Pardalote, a heavier bird than the Spotted, uses a tunnel nest, they usually excavate lower down the bank in firmer soil.

While generally associated with eucalypt woodlands and forests, these little jewels can also be found in parks and gardens. I actually heard one calling from some large exotic trees outside a supermarket in Kyneton recently. During the breeding season, keep an eye out for male birds perched high in trees, putting on an Elvis-like display; quivering wings extended, while moving their body from side to side. ■

Reference

Woinarski, J. C. Z. (1984). Small birds, lerp-feeding and the problem of honeyeaters. *Emu* 84. 137-141.

Emergence

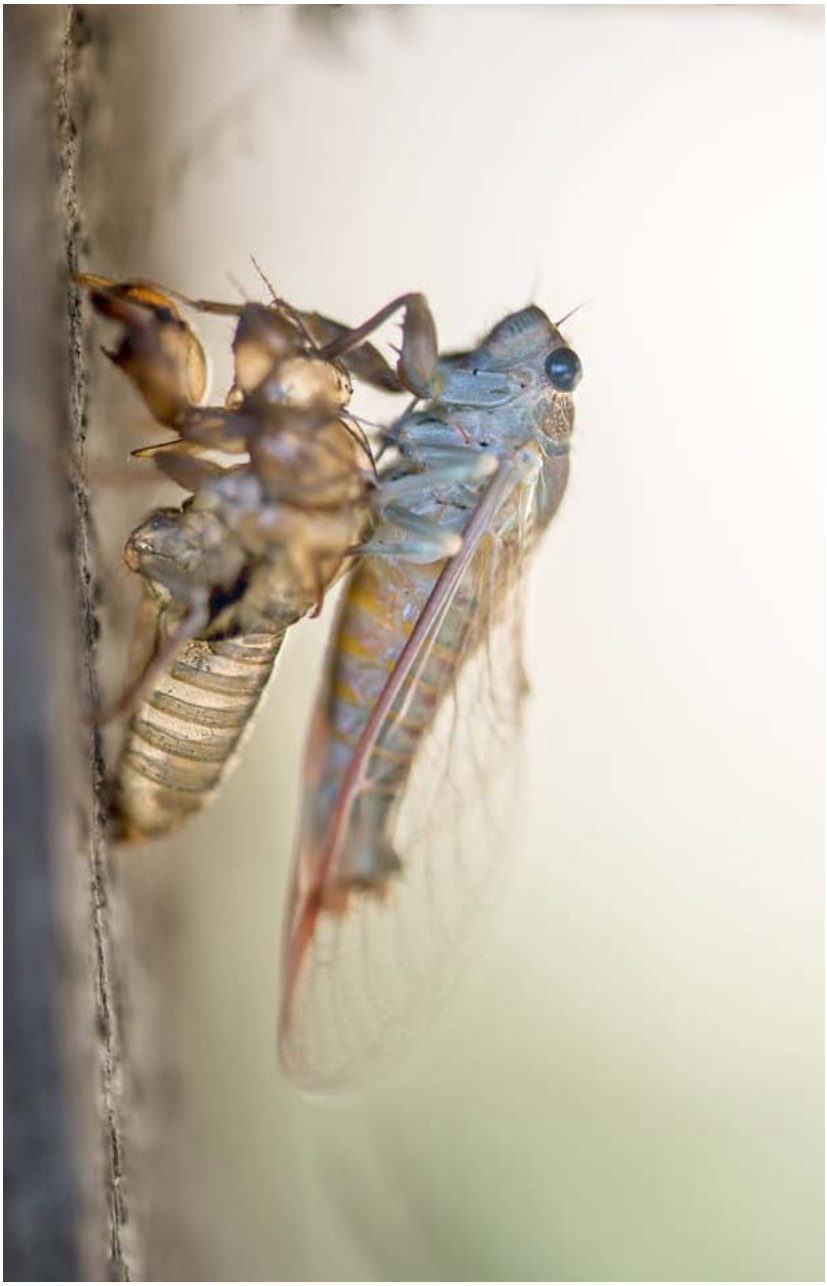
Words and Image by Alison Pouliot

The shrill chirping of cicadas on a summer evening is a quintessential sound of the Wombat Forest, second only perhaps to the *wulluk wulluk* quavering of corellas overhead, or the menacing deep grunt of a koala.

Australia's 200 odd species of cicadas range from tropical rainforests to the alps to coastal scrub. Each species has its own unique call, or rather, love song, as it is the sound of the males wooing females. One could be forgiven for thinking that female cicadas are deaf, as the serenading males can exceed an ear-splitting 100 decibels – that's about on par with a jackhammer or freight train. Their cacophonous racket also deters predatory birds, an advantage of being one of the world's loudest insects.

Unlike grasshoppers that produce sound by rubbing pegs on their legs against the edges of their forewings (known as stridulation), cicadas have two ribbed membranes called tymbals that are rapidly buckled by the tymbal muscle to produce sound. This is further amplified by air sacs in the cicada's hollow abdominal cavity.

More familiar perhaps than the strikingly coloured living cicada is its alien-like exuvia – the sloughed off empty nymph exoskeleton that is left behind as a brown integument or casing. The nymphs often emerge in broods and their exuviae can be found in abundance on tree trunks and other vegetation throughout the Wombat. Perhaps the most captivating aspect of cicadas is this miraculous metamorphosis between instars (developmental stages).



The newly emerged imago rests while its freshly minted wings harden. Photography © Alison Pouliot

Metamorphosis describes a biological process where an animal undergoes a conspicuous and abrupt change in body structure. The word is derived from the Greek language meaning 'transformation' (*meta* = after and *morphe* = form). In arthropods (insects and their kin such as arachnids and crustaceans) it involves the moulting of their exoskeletons. This is controlled hormonally.

Metamorphosis is an enthralling process to witness. I was about to enjoy my lunch by the Loddon, when I dropped my knife under the picnic table. That's when I spied this otherworldly transformation that was far more fascinating than my sandwich. Although feeling a tad voyeuristic, I was utterly transfixed for every second of the 44 minutes it took for the cicada's costume change to transpire.

Clasped to the leg of the picnic table with its powerful forelegs, I watched riveted as a lengthwise split magically opened up down the cicada nymph's thorax. After much shuddering, a 'new' head appeared through the 'shell'. A lot of writhing and wriggling and a gymnastic backbend later, a shiny imago (adult form) emerged from its drab brown encasement. It then slowly unfurled its brand new wings, gently vibrating them in preparation for a final fleeting life phase of feasting and flirting. How it fitted into its old costume remains a mystery as the 'new' cicada seemed so much larger, but perhaps it is like the enigma of one's tent that never seems to fit back into its strangely shrunken bag. Returning to my lunch, my sandwich had mysteriously disappeared. I scanned the branches in vain for a guilty looking kookaburra, but figured I'd got the better deal. ■

Egg and Bacon 8
The "not so" Flat-peas

Words and images by John Walter

"They could call it the Prostrate Upright Flat-pea" I jokingly said to noted Castlemaine botanist, Ern Perkins. It was 2011 and Ern had just advised me of the revision of the genus *Platylobium*, published in the journal *Muelleria*. One of the locally-occurring species of *Platylobium* had just been split into several new species, and we were playing around with potential common names for a bit of fun. Ern had long recognised the variation in the local species then known as *Platylobium formosum* and some of his collections were studied as part of Ian Thompson's 2011 revision of the genus.[1]

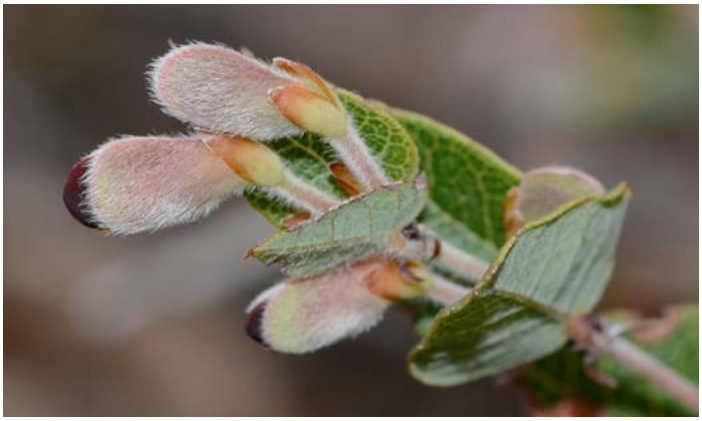
P. formosum was the first *Platylobium* to be named and it was yet another genus named by Sir James Edward Smith who also provided the names for *Dillwynia*, *Daviesia* and *Pultenaea*. This time he did not name the genus after a fellow botanist, basing the name instead on the shape of the pods. According to Smith, "Its name I have deduced from πλατύς broad, and λοβος a pod."[2] Using the Latin alphabet this becomes "*platys* broad, and *lobos* a pod". Unfortunately, some modern texts have substituted "flat" for the original "broad", thus confusing the common name with the original genus description. It was Smith, however, who also first recorded the common name of *P. formosum* in the same paper, describing it as the "Orange flat-pea". The form of the plant known to Smith is a large upright shrub, but Smith provides us with a clue to the origin of the name flat-pea in his original description. He uses the word *flat* twice, on both occasions it is in reference to the flat upper margin of the pod which he advises is a characteristic that distinguishes this genus from all others.

The common name Orange Flat-pea is no longer in use and this species is now referred to as the Handsome Flat-pea, a reference to the Latin word *formosus*, which translates as handsome, or beautiful. The island of Formosa, now known as Taiwan, was so named by the Portuguese as it was the "beautiful isle". The *Platylobium* species are closely related to the *Bossiaea* and have the largest flowers of the Egg and Bacon group.

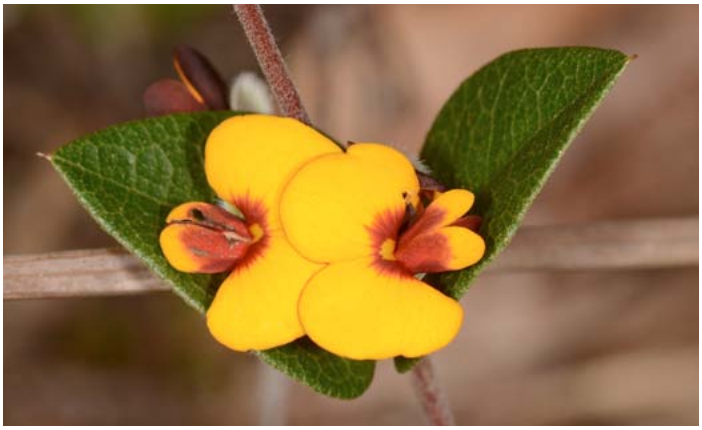
The revision by Thompson mentioned above determined that *P. formosum* is only found in NSW and QLD, while the plants previously recorded under that name in Victoria, are now listed under four new species. Two of these new species, one of which has two substantially different subspecies, occur locally and are covered in this article along with another species that was first identified in 1833. The first new species, and the instigator of the joke session above, is *Platylobium montanum*.

All images on this page are *Platylobium montanum* subsp. *montanum*. Typical seed pod with the flattened, or winged, upper margin that gave rise to the name Flat-pea.

Opposite cordate leaves with cluster of flower buds.



The large bracteoles cover the base of the hairy calyx on these developing flowers.



Lots of creatures like to munch on the flowers.

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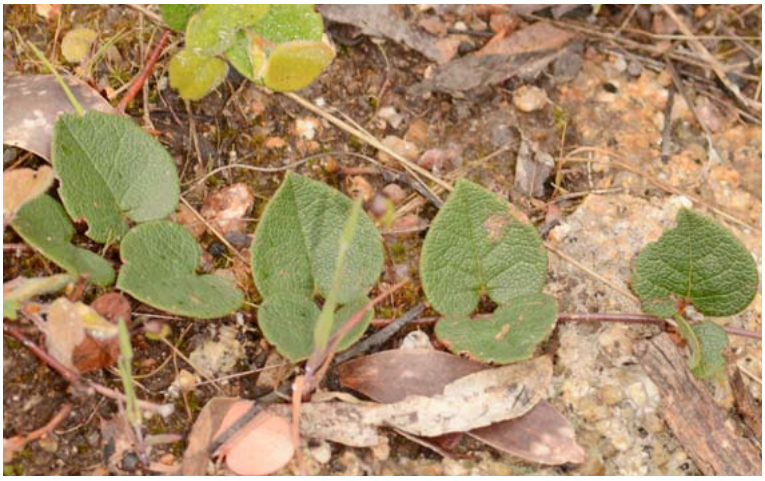
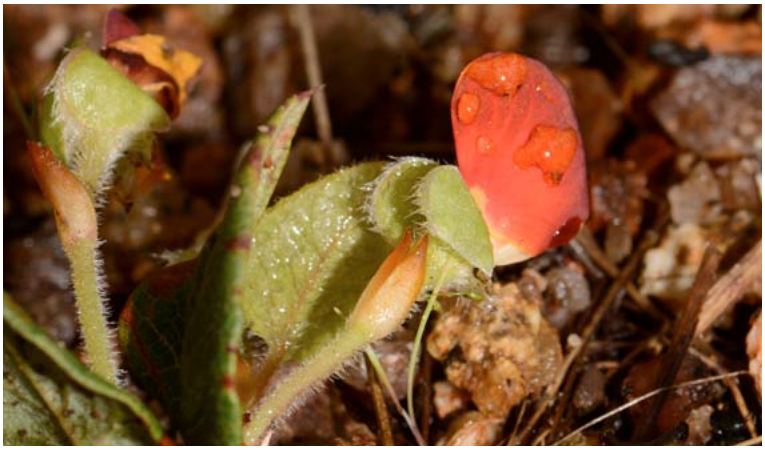
This species has two subspecies that are so different you could easily think of them as separate species. The first is *P. montanum* subsp. *montanum* and the second is *P. montanum* subsp. *prostratum*. Subspecies *montanum* is a somewhat upright shrub which can reach over a metre in height, but locally it is around half that. Its stems are not strong, giving the plant a sprawling appearance and Ern referred to it as the Upright Flat-pea. Subspecies *prostratum* is ground hugging, barely reaching a few centimetres in height, so naturally this became the Prostrate Upright Flat-pea in our word game.

P. montanum is also known as the Mountain Flat-pea as it is found in association with the Great Dividing Range in SE Australia. The leaves and plant habit are indicators of the individual subspecies, but you also need to look to the size, shape and location of the bracteoles, especially when the leaves are not obeying the rules covering their shape. The leaves on subspecies *montanum* have short petioles (stalks) and are broadly ovate. They generally have a cordate (heart-shaped) base and a short spine at the apex. They mostly occur in opposite pairs along the stems with clusters of flowers arising from the leaf axils. The flowers have pedicels (stalks) up to 15 mm long and two large bracteoles are attached just below the hairy calyx which partially cover the calyx. Flowers and seedpods are plentiful. This species is recorded in the mountains to the north and east of Melbourne, with a population also occurring in the Fryers Ranges between Drummond and Castlemaine.

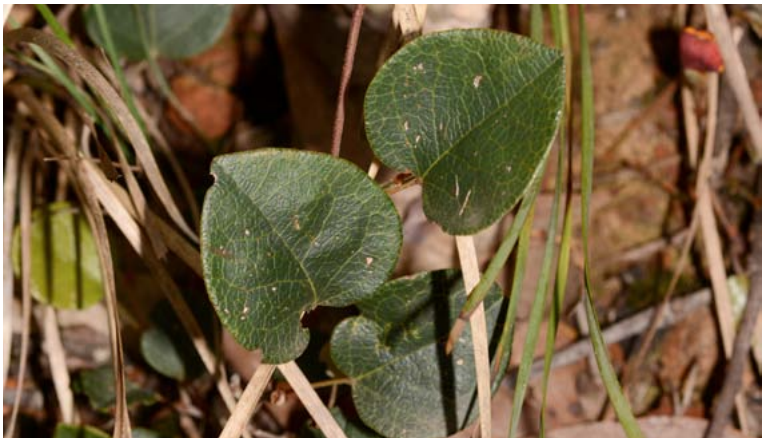
Now it should be easy to tell the difference between *P. montanum* subsp. *prostratum* and the next species, *P. rotundum*, but there are not enough pages in this newsletter for me to discuss the confusing array of variations I have found near my home in Drummond. Instead, I will focus on the key identifying features and use typical examples in my images. I will leave those plants that have the bracteoles in the wrong place or have purplish pink staminal filaments instead of white ones for another conversation in another place.

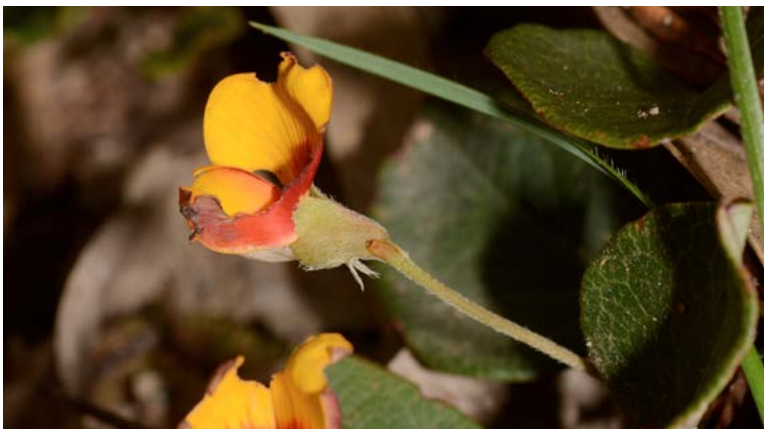
The leaves on *P. montanum* subsp. *prostratum*, the Prostrate Flat-pea, have longer petioles than subspecies *montanum* and Thompson describes them as "all opposite or with a proportion of leaves alternate" but he does not define what proportion. The only image of subspecies *prostratum* in Thompson's paper shows alternate leaves and is a photograph of the same specimen (collected in 1915) as was illustrated in the J.H. Ross review of the *Platylobium* from 1983.[3] While Ross retained the name *P. formosu*m, he referred to a variant





All images on this page are *Platylobium montanum* subsp. *prostratum*.
Top and above: Black Hill form with opposite leaves and the large bracteoles.





Third and fourth: Drummond form with mostly alternate leaves and the smaller bracteoles just touching the calyx. On some plants the bracteoles may be a little lower.

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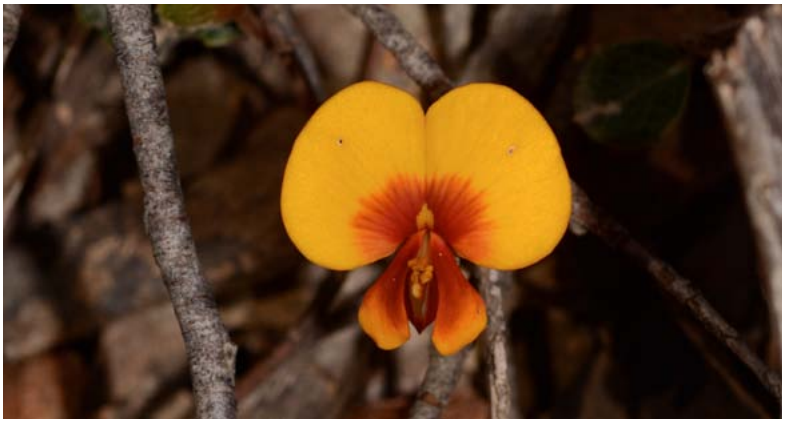
from Victoria in which "some or all of the leaves are borne alternately". I have located two forms of what appears to be subspecies *prostratum* in this district. One is at Black Hill Reserve in which all the leaves are opposite and the plants are completely prostrate and strongly resemble a ground-hugging version of subspecies *montanum*. On this form the bracteoles are large, like those on subspecies *montanum*, and are positioned just below the calyx and partially cover the calyx, also just like subspecies *montanum*. There is also a population of plants near Taradale that has all opposite leaves and appears to be midway between the two subspecies of *P. montanum*.

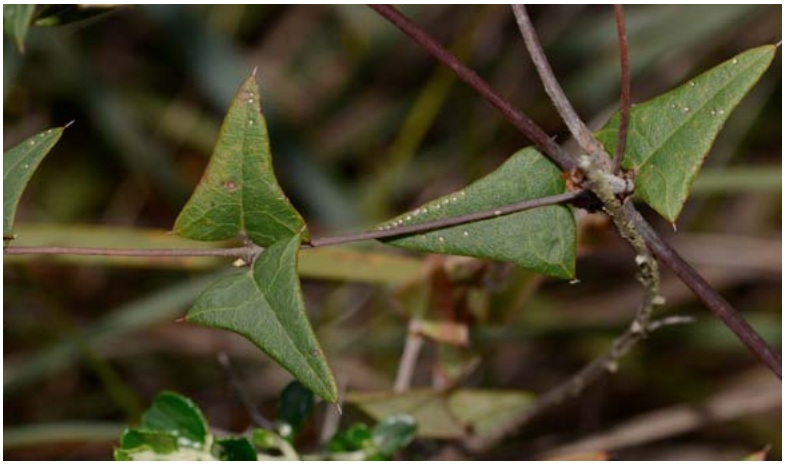
The other form of subspecies *prostratum* occurs at Drummond and is just a few kilometres from the plants studied by Thompson. On these plants all, or virtually all, of the leaves are alternate, and I had to look hard to find any leaves that were opposite. This latter form also grows near a good population of another species, *P. rotundum*, on which all the leaves are alternate. There appears to be many intermediates (or hybrids?) occurring here, or perhaps the two species are growing together in huge mats of several plants covering dozens of square metres. The bracteoles on this form of subspecies *prostratum* are smaller and are generally placed a little below the calyx, within the upper third of the pedicels supporting the flowers.

The bracteoles on *P. rotundum*, the Round-leaf Flat-pea, are also smaller, and on this species they are positioned in the middle third of the pedicels. The leaves on this species are frequently circular but they can also be broad-ovate or broad-elliptic, making the plants with these leaf shapes look similar to *P. montanum* subsp. *prostratum*. I have also found the Round-leaf Flat-pea at Lyonville and there are several records for it in the Wombat Forest. Both *P. rotundum* and *P. montanum* subsp. *prostratum* form can form large mats and both species rarely set any seed.

There have not been any collections of either subspecies of *P. montanum* from the Wombat other than one record for subspecies *prostratum* near Dales Creek. There may be others out there awaiting discovery as there are plenty of observation records throughout the Wombat that are listed as *P. formosum* and many of these are from reliable observers. Unfortunately, there is no way to tell which of the preceding species applies to these observations now.



Top, Second and Third are *Platylobium rotundum* showing the circular leaves, the small bracteoles are just visible a little over half way down the pedicel of the flower, and a flower from the Lyonville population.



Opposite, triangular leaves of *Platylobium obtusangulum*

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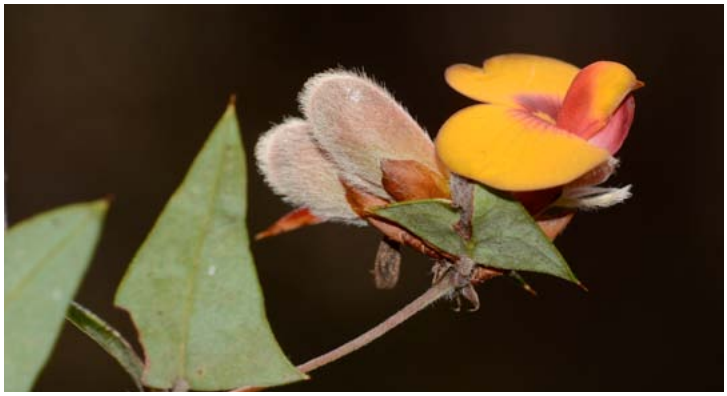
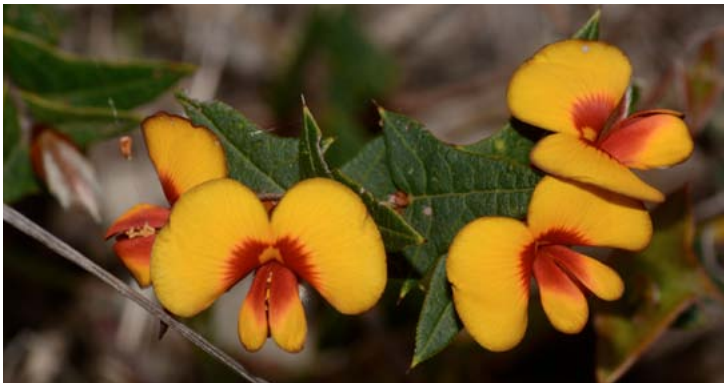
Our last *Platylobium* is *P. obtusangulum*, the Angular Flat-pea, and this one is easy to identify due to the opposite, triangular or sometimes kite shaped leaves. There are several records for it in the Wombat Forest, but I have not personally seen it there. My images are from the Brisbane Ranges, where it seems common. It is a sprawling small shrub and could only be confused with another triangular leafed species that does not grow locally but is found in the far west of Victoria and around Melbourne and Wilson's Promontory. This other species, *P. triangulare*, has bracteoles that sit below the calyx and are curved away from the calyx, whereas on *P. obtusangulum* the large bracteoles sit at the base of the calyx and partially cover it.

This series of articles on Egg and Bacon has almost reached its end with just two species left to cover in the final article. The Platylobiums have been the most difficult group to cover due to the variation in *P. montanum* subsp. *prostratum* and *P. rotundum* but the local species can be summarised as:
Small scrambling to upright plant with opposite cordate leaves is *P. montanum* subsp. *montanum*, or if the opposite leaves are triangular then *P. obtusangulum*.
Spreading prostrate plant with round leaves is *P. rotundum* or if the leaves are opposite and cordate, or alternate and cordate, then *P. montanum* subsp. *prostratum*. Simple! Now if only the plants would follow these rules! Perhaps the real joke here is our belief that we can make nature conform to our own determination and desires instead of working in collaboration with the natural world for the betterment of all species. ■





Both images are *Platylobium obtusangulum*.
Above: Flower and large brown bracteoles over the hairy calyx to the left.
Below: Flower cluster.

Notes

1. Thompson I R (2011) "A Revision *Platylobium* (Fabaceae: *Bossiaeeae*)" *Muelleria* 29(2): 154-172
2. Smith J E (1794) "Dr. Smith's Account of PLATYLOBIUM" *Transactions of the Linnean Society of London* v.2 1794: 350-352
3. Ross J H (1983) "A Revision of the genus *Platylobium* Sm. (Papilionaceae) *Muelleria* 5(2): 127-141

The Allure of Fungi - book launch and reading

"Slipping through the slanting light of the Wombat Forest, our senses awaken to the change of seasons. Autumn. All is subtly muted, softened. Dampness subdues the usual crack of sticks and leaf litter underfoot. Birdcall and the buzz of insects diminish with the cooling air. And it smells different. Distinctively different. At first it seems the forest is winding down for the winter. However, something stirs beneath the leaf litter, beneath the soil. With extraordinary reproductive zeal, fungi reveal their whereabouts as their sporebodies push through the forest floor. We have come to meet with mushrooms."

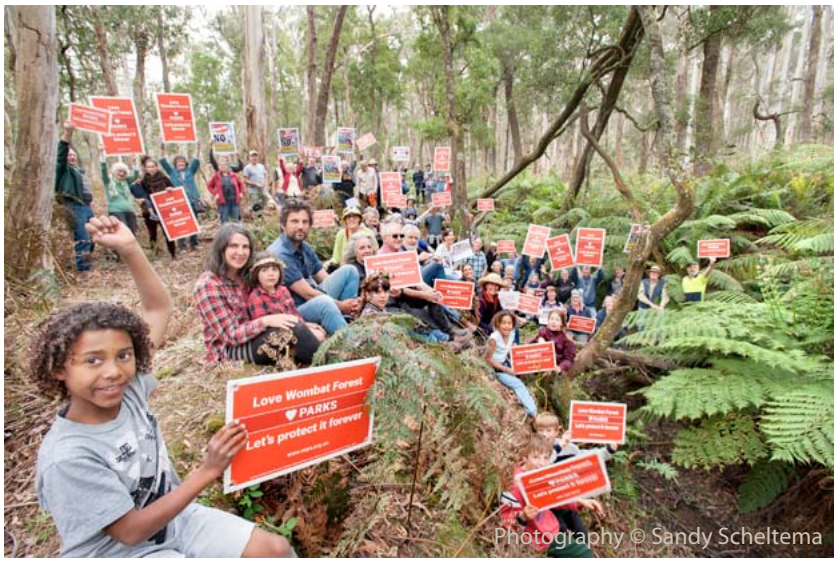
So begins the new book, *The Allure of Fungi*, by local ecologist and photographer, Alison Pouliot.

Between 2012 and 2016, Alison spent a thousand days among the fungi in the forests of twelve countries (and much of it in the Wombat) to search for the answer to one question – why are fungi regarded so differently to other forms of life? The book explores the answer to that question and provides the possibility for fungi to be recognised as vital to functioning ecosystems and to be included in biodiversity conservation. However, it also offers something else – the opportunity to think differently not just about fungi, but the natural world more broadly.

Although relatively little known, fungi provide the links and flows between the terrestrial organisms and ecosystems that underpin our functioning planet. The book presents fungi through multiple perspectives from mycologists to historians to Traditional Owners, as well as some local characters who you are sure to know. Through a combination of text and visual essays, it explores how a history of entrenched fears and misconceptions about fungi has led to their near absence in Australian ecological consciousness. ■

Wombat Forestcare and Alison will launch the book on Thursday 28 February at the Woodshed, 21a Raglan Street, Daylesford at 6pm.
All are welcome. Please join us for a celebratory glass of champagne and to hear some readings from the book.

Photography © Sandy Scheltema



Photography © Sandy Scheltema

Sandy's photographs capture the affection for the Wombat held by all generations of our community.

On a Sunday afternoon in November, supporters of the campaign for 'park status' for the Wombat Forest arrived at Countess Road, Trentham to be included in a publicity photo to be taken by Sandy Scheltema.

The original plan to photograph the group in the forest near the road was abandoned by Sandy when she remembered that there were lush tree ferns along a creek nearby.

Despite some difficult terrain, over sixty people, including some with walking difficulties, hiked the 300 metres and clambered into the damp creek bed.

Everyone was so patient; some people waited nearly an hour in the creek bed and on the banks as others slowly arrived.

Sandy's wonderful photos grabbed the media attention we needed. ■