



Wombat Forestcare Newsletter

Welcome to our spring edition. After a cold and rainy winter, the days are sunnier and the wildflowers are starting to bloom. The rivers and creeks have benefited from the rain and are flowing well. Wombat Forestcare continues to campaign to stop the environmentally damaging VicForests' salvage logging. **Gayle Osborne** (editor) and **Angela Halpin** (design)

The buzz about bees and mites

By John Walter

Readers will have no doubt heard about the recent discovery of the Varroa Mite, *Varroa destructor*, in hives of the European Honeybee, *Apis mellifera*, around Newcastle and the subsequent lock down of hive movement as a result. Beekeepers Australia wide are naturally concerned, as are the many primary producers who depend on the bees from commercial beehives to pollinate their crops. Products such as almonds, blueberries and other berries, macadamia nuts, apples, cherries and many more will be impacted this season; and growers will face substantially higher costs in future years if the current outbreak is not eliminated.

Rather than examine how the pest arrived in this instance, I want to consider how fortunate we have been to have remained so long without a substantial outbreak of this mite. The Varroa Mite is a natural pest of the Asian Honeybee, *Apis cerana*, and is reported to have jumped species to the European Honeybee in Korea, Japan and the Philippines in the 1960s.¹ From there it spread to China and Russia before moving on to Europe and America in the 1970s and 80s, finally arriving in New Zealand in 2000. I have direct experience of the quarantine procedures in place in New Zealand, and while Australia is very good at telling everyone how strict we are when it comes to quarantine, in my opinion we do not even come close to the effort taken by the NZ government to prevent the introduction of pest species. An infected



Adult female Varroa Mite on bee larvae

https://apps.lucidcentral.org/pppw_v10/text/web_full/entities/varroa_destructor_mite_327.htm



Illustration of the life cycle of the Varroa Mite. This image appears on a US Department of Agriculture website where it is credited to Bayer @ researchbayer.com - see : <https://www.ars.usda.gov/pacific-west-area/tucson-az/carl-hayden-bee-research-center/research/varroa-varroa-mite-life-cycle-and-reproduction/>

swarm of bees was detected and eliminated in Melbourne in 2018 but it has long been believed that an outbreak was inevitable. None of the outbreaks in other countries have been successfully contained and given the large number of

continued next page ...

“wild” hives in Australia, it will be quite a feat if the NSW Government manages to successfully eradicate this outbreak.

Given the fact that we now have populations of the Asian Honeybee in Cape York and around Cairns and Townsville, you might think that we are just a moment away from a major outbreak of the mite in our European Honeybee population via this means. However, there was a considerable period of coevolution of the Varroa Mite and the European Honeybee after that species was introduced into Asia before the mite was able to successfully jump species. While studies indicate this jump has occurred multiple times, it does not mean that the Varroa Mite can readily jump to other bee species such as one of our many native bees. Australia has around 2000 native bee species, but none are members of the genus *Apis*, and most do not even belong to the same family of bees as *Apis*. Of those that do belong in the same family, the majority are solitary species that do not breed in hives. This lifestyle does not suit the needs of the Varroa Mite. Our only social (hive forming) bees are the so-called stingless bees which are less than 5mm in size and once again, do not meet the basic needs of the Varroa Mite. The Varroa Mite has only rarely been recorded on other bee species (using them as convenient transport) but can only breed on the larvae of the two mentioned *Apis* species.

The devastating impact of the mite on the Honeybee is thought to be due to it being a vector for viruses such as the deformed wing virus. While the mite is recognised as a vector for five viruses, it is also feeding off the fat body of both larval and adult bees which adds to the problem. Now I am not implying here that bees are overweight, all insects have tissues in their abdomen called fat bodies that store energy in the form of lipids and triglycerides and glycogen when food is readily available and then release it during hard times. This is especially important during the growth phase of the larvae. The mites breed in the brood cells of the bees, and it can be several years before the infestation becomes large enough to be noticed.

There is life after Varroa, however. I recently overheard a conversation between a couple of beekeepers who were reviewing the potential outcomes of the current outbreak. They realised that there were some benefits, foremost among them being the elimination of the “cowboys” from the industry. Not all beekeepers practice good hive hygiene allowing a much wider ranges of pests and diseases to remain active. We should also consider the potential impact of many inexperienced beginners and hobby farmers who all too frequently include a hive on their lifestyle property without first learning of the basics of bee keeping and disease and pest management.

Another benefit to consider of course is the reduction of competition for the nectar and pollen resources provided by our native vegetation, giving our native bee species an opportunity to rebuild their populations. The European Honeybee falls significantly short when it comes to pollination of many of our native flora species whereas



Leioproctus (Cladocerapis) sp. on *Persoonia rigida*. The genus *Leioproctus* has the largest number of species of all Australian bee genera. Members of sub genus *Cladocerapis* are all specialist pollinators of *Persoonia* and have modified shiny smooth patches on their head which allows them to access the flower's nectar. Photography © John Walter.



Tetragonula carbonaria working the Chard flowers in Drummond. Note the blobs of a pollen/nectar mix on the hind legs of this tiny (just 4mm long) bee. Photography © John Walter.

continued next page ...

coevolution with our native bee species has produced adaptations that have now made many flora species dependent on just one or two native bee species for pollination to occur.

A quick look at the countries that were impacted by Varroa Mite some 20, 30 or 40 years ago demonstrates that they have not collapsed. They are still food producers, however the cost of pollination services from well managed hygienic hives has doubled or tripled from their pre Varroa rates. 95 to 100% of wild hives have disappeared in USA and New Zealand. While this would be good for our native bees as noted above, it will surely impact on the productivity of our backyard orchards although some generalist native species would partly fill the gap. There are ongoing trials on the suitability of our native social bees for use as commercial pollinators, both in greenhouses and orchards, and the Upper Campaspe Landcare Network (UCLN) also conducted a small-scale trial in the summer of 2021–22 when seven hives were located on properties to see how these bees coped. The species trialled was *Tetragonula carbonaria*, the species most likely to do well in the cooler climate of Victoria.²

While a couple of the hives put on a reasonable weight gain, they were placed in ideal locations and past experience has shown that even these hives would not survive the long cold Victorian winter. All hives were returned to NSW in April 2022. I managed to photograph several of these little stingless bees feeding on the flowers of Chard in our vegetable garden and we also captured one bee in a pollinator trap (as part of our UCLN survey) approximately 1.4 kilometres from the nearest hive. This was quite a surprise as we had been told that the females foraged up to 100 metres from the hive with males travelling as far as 500 metres when in search of a mate. I later found research from 2017 that lists the typical homing range of this species as 333 metres with the maximum homing range at 712 metres.³ This is substantially less than the foraging range of five kilometres for the European Honeybee, and could, in fact, be beneficial if a hive was placed in the centre of a large orchard. The smaller range of the native bees could mean that they spent more time



There are six mites hitching a ride on the back of this *Lasioglossum (Parasphecodes) sulthicum*. Photography © John Walter.

foraging on the intended crop than the introduced honeybee, which often targets the best resource within their range regardless of whether it was the intended crop or not. The 2017 paper does note that the foraging range for *Tetragonula carbonaria* in bushland may be greater than that reported due to the increased opportunity for the bees to navigate using landmarks; but also cautions that navigation methods are poorly understood.

We do already have our own species of mites that can be found on our native bee species. In fact, different species of mites can be found on most animal species (including insects) but we are concerned with bees in this instance. These mites can be loosely categorised into three groups.

1. Those that live in the nests where they may feed on the waste of the larvae thereby providing a service to the bees, or some may steal pollen from the larvae. Mites in this category may be seen on adults on which they hitch a ride as part of their dispersal process.
2. Flower mites that are also hitch hikers but do not otherwise interact with the bees they ride upon.
3. True parasitic mites which are generally smaller than the species in the other categories and are rarely seen.

The UCLN has recorded over 100 different species of native bee in the surveys taken over the last eighteen months and collected almost 2000 individual specimens. I have personally pinned more than half of these and photographed all of them and can say with confidence that the vast majority do not show any evidence of mites on their body. One notable exception to this was a species called *Lasioglossum (Parasphecodes) sulthicum*, which was collected in some traps set at one of our survey sites in the Wombat State Forest in October 2021. All seventeen specimens of this species in these traps carried 1–6 large reddish mites on their backs. Further research on the matter indicates to me that these mites are hitch hikers and harmless to the bees.⁴ Subsequent examination of other specimens of *Lasioglossum (Parasphecodes)* trapped in March 2022 at nearby sites also detected the presences of a smaller lighter coloured mite, possibly a different species.

So, what can we do to help in the current scenario? The most important thing is do your research now if you have a backyard hive or are planning to have one and to ensure your hive hygiene is up to scratch. There are numerous guides and documents on how to maintain good hive hygiene and tests (such as the sugar shake test) that you can regularly do on your hive.⁵ While good hive hygiene has always been essential if you want to maintain healthy bees and avoid the wrath of other beekeepers, it is so much more important now. As for me, my diet has already been modified to reduce fruit and honey intake for health reasons and I will continue to enjoy searching for and recording our native bees and other insects on a regular basis. ■

continued next page ...

Notes

1. Techer, M. A. *et al* (2022) The first steps toward a global pandemic: Reconstructing the demographic history of parasite host switches in its native range *Molecular Ecology*, 31(5):1358-1374
2. None of the hive forming native bees occur naturally in Victoria with *Tetragonula carbonaria* having the southernmost range and reaching into the south coast of NSW. Some studies have indicated that this species will have migrated into Victoria later this century due to the warming of our climate.
3. Smith, J. P. *et al* (2017) Flight Range of the Australian stingless bee *Tetragonula carbonaria* (Hymenoptera: Apidae) *Austral Entomology*, 56(1):50–53
This study used homing range (ability for bees to find their way home to the hive) as a proxy for the foraging range of *Tetragonula carbonaria*.
4. Walter, D. E. *et al* (2002) Of mites and bees: A review of mite-bee associations in Australia and a revision of *Raymentia* Womersley (Acari: Mesostigmata: Laelapidae) with the descriptions of two new species of mites from *Lasioglossum* (*Parasphecodes*) spp (Hymenoptera: Halictidae) *Australian Journal of Entomology* 41 (128–148)
5. [How to sugar shake bees video – NSW DPI](#)

Orb Weaving Spiders

Words and images by Gayle Osborne

As insects become more plentiful with the warmer weather, we start to see spiders building webs in the vegetation. Orb Weaving Spiders are a large group of spiders that make sticky wheel-shaped webs. The spiderlings hatch in autumn and develop rapidly in spring.

Many people are familiar with the Australian Golden Orb-weaver *Trichonephila edulis* with its large web full of insect remains, however there are many other beautifully patterned orb-weavers that are not so obvious. Some will be found in the shrubbery and even in blackberry patches. ■



Under and above views of Outback Orb-weaver Genus *Backobourkia*.

Boobook Calling

By Trevor Speirs

Anyone living close to the Wombat Forest, or a patch of bush with some fairly sizeable trees, has a good chance at this time of year to hear the very familiar call of the Southern Boobook *Ninox boobook*. From around mid-August, as the days lengthen, the two hoot call, so much a part of the Australian bush, starts to be heard throughout the forest following a long period of silence during the coldest days of winter. Calls are often continuous and can go for well over an hour, usually from the same spot. Unlike the Wombat's other Ninox owls, the Powerful Owl and Barking Owl, where the male voice is noticeably deeper than the female's, this is not the case with the Southern Boobook where the difference between the sexes is barely discernible.

Both sexes can engage in these long bouts of "territorial calling" at this time of year, which is mainly used as a warning to other Boobooks, both male and female, to keep away from an established territory. Occasionally, owls from neighbouring territories, usually the male, will engage in periods of aggressive calling to each other. The double hoot call is believed to be performed through a closed bill with both wings pressing against the body as each sound is emitted. This sounds tiring but a lot of effort is put into protecting breeding territories. While the core breeding territory can be reasonably small, possibly only several hectares, home ranges will be much larger and can overlap with a neighbouring pair's territory. Another call in their repertoire is what's known as "braying", which is mainly given by the female during the breeding season and will most likely indicate an active nest in the near vicinity. It is hard to describe, but is a little like the sound made by sheep but with a vibrating element to it.

The Southern Boobook is generally thought to lay eggs between August and November in southern Australia. However, well-known raptor expert, the late Jerry Olsen, believed laying can sometimes extend into February.¹ This would be very late for any Wombat Forest birds when you consider the time from an egg hatching to fledging is over 70 days, meaning juveniles will be fledging when the weather is starting to cool and there is a noticeable decrease in the available food supply. Although recently fledged juveniles feed on birds and mammals brought to them by their parents, their own early prey capabilities are mainly limited to invertebrates. It is probably the reason why most Southern Boobook eggs are laid in spring, ensuring that when chicks fledge in early summer, prey items like moths and beetles are at their peak abundance.

The juvenile (or chick) of the Wombat's three Ninox owl species all have a very similar cricket-like trill that they gradually lose as they become independent from their parents. The young Southern Boobook's trill is slightly shorter than the other two owls and very insect like, and



Southern Boobook *Ninox boobook*. Photography © Gayle Osborne.

particularly high-pitched. Last year on a cool evening in late March, just off Countess Track, I was quite surprised to see and hear two Southern Boobook juveniles, calling frantically, no doubt hoping to attract the attention of a nearby parent. In the Wombat, these urgent calls are usually heard during the warmer months, so maybe these youngsters were a pair of late starters and still some time from making their own way in the world. ■

Note

1. Olsen, J. (2011). *Australian High Country Owls*. CSIRO Publishing, Melbourne.

Vulnerable and Unprotected

Words and images by Gayle Osborne

As the VicForests' salvage logging continues, it has become apparent that it is impossible to ensure that threatened species are safeguarded and the environments and waterways are protected.

The logging contractors have to comply with the *Code of Practice for Timber Production 2014 (amended 2021)* and the *Management Standards and Procedures for timber harvesting operations in Victoria's State forests 2021*. These documents detail how and if protections apply.

The Office of the Conservation Regulator (OCR) oversees the compliance with the code and the management standards, however they have no power to deal with so many of the issues that concern us due to the lack of protections afforded in these documents.

Although this operation is to salvage fallen trees, the code allows for clearing of standing forest. As stated by the OCR in response to our query regarding the removal of over a hectare of Greater Glider habitat at Babbington Hill "the clearing of trees is authorised for operational requirements, including the construction of infrastructure (log landings) and staff safety."

On Babbington Hill, tracks were created alongside habitat trees with hollows that are most likely used by Greater Gliders. There was machinery damage to the tree trunks, compaction of soil and probable damage to the tree roots. This was reported to the OCR who responded that this was not a breach of the code as "the State-wide habitat retention prescription (4.1.1.1) does not mandate an absolute protection to habitat trees in all circumstances. The intent of the prescription relates specifically to the retention of



Habitat tree damaged by logging machinery.

Deep mud and debris caused by large machinery constructing a 'snig' track across a ferny drainage line.



habitat or potential habitat trees at a minimum volume across the net coupe area." In the Wombat only three habitat trees per hectare need to be retained and this would be averaged across the coupe. A coupe is an area of forest from which timber is harvested in one operation.

Clause 2.2.2.10 in the code states "Retain and protect habitat trees or habitat patches and long-lived understorey species to provide for the continuity and replacement of old hollow bearing trees and existing vegetation types within each coupe." It is not clear why the damage to

continued next page ...

the habitat trees at Babbington Hill was not covered by this clause, however it highlights the lack of protections afforded to critical habitat.

Another area where there are few protections for the environment is the installation of tracks crossing drainage lines. Drainage lines are indentations in the landscape where water seeps or may run after rain and has vegetation that is usually riparian in nature, often containing ferns. The code allows some protection from logging with what is known as a filter strip and states that “Disturbance to soil and understorey vegetation from timber harvesting in filter strips must be minimised.”

The contractor is permitted to construct a machinery ‘snig’ track across these drainage lines in order to recover logs. The photographs show a ‘snig’ track through a ferny drainage line on the east side of Babbington Hill, only about 100 metres from the Loddon River. The damage is extensive. The code states that all snig tracks are to be rehabilitated at the completion of the timber harvesting operation, however it is hard to see how this crossing of the drainage line could be restored.

It is mandatory that VicForests make clear maps showing the locations of harvesting coupes available for public scrutiny, however the maps that are available to the public are difficult to navigate and do not contain any geographic coordinates. It is also mandatory to prepare coupe plans that detail the operations but these are not available to the public, making it impossible for concerned citizens to see whether there are processes in place for the protection of threatened species known to occur on the coupes.

VicForests is not obliged to publish the dates that it intends to commence harvesting any of the 175 coupes listed for the Wombat Forest. This means that we are not able to know where to concentrate our survey efforts. Once the notices designating a harvesting operation have been attached to trees by VicForests, even if work has not commenced and there is no machinery on site, it is illegal to enter the coupe, and therefore illegal to survey for threatened species. When the operation has ceased and all machinery has been removed it is also unlawful to enter a coupe while the signs remain in place.

Clearly, the code is designed to protect the logging industry. It is extremely frustrating to find that the code has so much wriggle room when it comes to safeguarding the environment. Section 3.1.1.1 in the management standards states that “Salvage harvesting operations must take as much account of environmental care as any other timber harvesting operation.” Fine words, but the reality is that our forest is being unnecessarily vandalised.

We should be outraged that this wanton destruction in the Wombat Forest is apparently legal. This does not make it morally right.



Extensive damage caused by large machinery constructing a ‘snig’ track across a ferny drainage line.

Our community needs to stand up and make our objections known to our elected members of the Victorian parliament and we urge you to write to your local member. ■

References

1. Department of Environment, Land, Water and Planning 2021, *Code of Practice for Timber Production 2014 (amended 2021)*.
2. Department of Environment, Land, Water and Planning 2021, *Management Standards and Procedures for timber harvesting operations in Victoria's State forests 2021*.

Vegetation of the Wombat Forest



Damp Forest (EVC 29)

By Murray Ralph

The Wombat Forest contains a very diverse range of native plant species that occur in over 30 distinct plant communities. Plants communities are groups of plants that grow together sharing similar environmental conditions such as climate, geology, soil type, aspect, altitude and position in the landscape.

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

In Victoria, most plant communities have been formally described and mapped, and are called Ecological Vegetation Classes (EVCs).

Damp Forest is found in the higher rainfall areas of the Wombat Forest in sheltered, deep gullies or along seasonal creeks. Annual rainfall is between 950–1200mm per annum. Soils are fertile, deep and alluvial. Surrounding slopes are usually steep to moderate.

Damp Forest is restricted to narrow strips and is relatively uncommon in the Wombat Forest. It is often found within adjacent Shrubby Foothill Forest or occasionally within Heathy Dry Forest on more exposed slopes.

It is most common on the south side of the Great Dividing Range.

Damp Forest along Saltwater Creek, Wombat State Forest.
Photography © Gayle Osborne.

The tall overstorey to 35m is dominated by Eucalypts such as Messmate *Eucalyptus obliqua*, Mountain Grey Gum *Eucalyptus cypellocarpa*, Manna Gum *Eucalyptus viminalis*, Candlebark *Eucalyptus rubida* and Narrow-leaf Peppermint *Eucalyptus radiata*.

A lower tree layer of Blackwood *Acacia melanoxylon* to 20m tall is also present.

Below the tall canopy, a dense small tree layer dominated by Musk Daisy-bush *Olearia argophylla* 6–10m tall is a key characteristic of Damp Forest. Other small trees such as Blanket-leaf *Bedfordia arborescens* and Hazel Pomaderris *Pomaderris aspera* are also present. Austral Mulberry *Hedycarya angustifolia* is occasionally present.

A sparse lower shrub layer may also be present and includes Prickly Currant-bush *Coprosma quadrifida*, Hop Goodenia *Goodenia ovata*, Prickly Moses *Acacia verticillata*, Showy Daisy-bush *Olearia livata* and the occasional Mountain Correa *Correa lawrenceana*.

Soft Tree Fern *Dicksonia antarctica* and Rough Tree Fern *Cyathea australis* are also found in Damp Forest, but are now less common due to removal during logging.

Ferns or shade tolerant native herbs usually dominate the ground flora.

continued next page ...



Above: A Rufous Fantail nests amongst the Musk Daisy bushes.
Right: Rose Robin *Petroica rosea*.
Below: Damp Forest along Saltwater Creek, Wombat State Forest.



The most common ferns are Fishbone Water-fern *Blechnum nudum* and Mother Shield-fern *Polystichum proliferum*, but other species such as Hard Water Fern *Blechnum watsii*, Bat's Wing Fern *Histiopteris incisa* and Common Ground-fern *Calochlaena dubia* are also present.

Native herbs include Shade Nettle *Australina pusilla* ssp. *muelleri*, Tasman Flax-lily *Dianella tasmanica*, Bidgee Widgee *Acaena novae-zelandiae*, Cinquefoil Cranesbill *Geranium potentilloides*, Prickly Starwort *Stellaria pungens*, Native Parsley *Xanthosia dissecta* and Ivy-leaf Violet *Viola hederacea*.

Grasses are usually sparse but include Common Tussock-grass *Poa labillardierei* and Forest Wire Grass *Tetratheca juncea*. Red-fruited Saw-sedge *Gahnia sieberiana* can also be present.

A diverse range of fungi grows in the damp environment of Damp Forest along with various species of moss.

With its dense multi-layered canopy Damp Forest provides vital habitat for a wide range of native mammals, birds, reptiles and amphibious species. Migratory birds such as Rufous Fantails, Satin Flycatchers and Rose Robins arrive in spring to breed in the Musk Daisy gullies. Powerful Owls have also been seen roosting in the Blackwoods.

All EVCs in Victoria are assigned a conservation significance based on the extent they have been cleared from their former range. Damp Forest is classified as being vulnerable. The current principal threats to this EVC in the Wombat Forest include climate change, altered fire regimes, loss of hollow bearing trees, weed invasion and pest animals. ■



Gang-gang project

Words and images by Gayle Osborne



Gang-gang Cockatoos *Callocephalon fimbriatum*.
Photography © Gayle Osborne.

How are Gang-gang Cockatoos *Callocephalon fimbriatum* are faring in the Wombat Forest and surrounds? This beautiful bird was listed as 'Endangered' in March this year, mainly due to a sharp decline in their estimated population. There was a major loss of habitat in 2019–2020 bushfires, but declines had also been recorded throughout their range prior to the fires.

Fortunately the Wombat was not impacted by fire during the summer of 2019–2020, but there was a loss of many thousands of trees in the extreme wind event of June 2021.

Gang-gangs are the least studied of the cockatoo family. To understand the environmental factors leading to their decline it is important to collect data regarding their locations, breeding and food sources.

Dr Michael Mulvaney and an informal group of people and community organisations have been monitoring Gang-gang nest hollows in the Canberra region and Michael is beginning to coordinate and encourage widespread monitoring of Gang-gang nests this breeding season. It is important to learn more about Gang-gang

nesting ecology across its range, so that more informed and effective conservation of this magnificent cockatoo can occur.

Like so much of the fauna in the Wombat, Gang-gangs are reliant on tree hollows for breeding and not just any hollow will do. It has to be the right size; roughly 30cm x 30cm, but with their strong beaks Gang-gangs can enlarge a smaller hollow. Both sexes chew the sides of the hollow and use the wood chips and fragments to line the nest.

If you are walking in the Wombat Forest and surrounding area in the next few weeks, please keep an eye and ear out for Gang-gangs and look for hollows with chew marks at the entrance.

Dr Mulvaney will visit in late November to inspect known breeding hollows and collect data. ■

Sightings can be recorded on iNaturalist
<https://www.inaturalist.org/projects/gang-gang-nests-tree-hollows-search>

Or send an email to info@wombatforestcare.org.au

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 - www.wombatforestcare.org.au

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