



Montreal Field Journal

A monthly newsletter showcasing the biodiversity of Montreal Goldfield

Issue No. 3 ~ May 2023

Unlike previous issues of the Montreal Field Journal I am finding this month's issue a difficult one to write due to goings-on on the Goldfield during May. I, and many others, have been disturbed and distressed by damage to and destruction of vegetation and habitat across the goldfield, apparently largely in the name of fire mitigation work. Although I had been made aware that some work was to be done, and that pile burns would occur, I was completely unprepared for the level or scope of damage and destruction that I was confronted with when, after a week's absence due to ill-health, I returned to the site. Such was my despondency at the sad, sorry and, quite frankly, ugly condition of the site that I found myself questioning the value of continuing with this monthly missive. As evidenced here I have decided to proceed with it, at least for the time being, and will use future visits to Montreal Goldfield to not only record and report to you good folk the fabulously diverse flora and fauna I encounter, but also to document the recovery of flora and habitat after such brutal impact. Personally, and despite discussions with the Montreal Committee, I remain unconvinced that such damage is warranted or in the best interests of the site's ecology. I have written to Council to raise my concerns and shall keep you updated on all future developments. A final word before I move on to happier and more positive musings – it is the view of at least one Montreal Committee member that Montreal Goldfield is NOT the place for biodiversity walks and studies and that the focus should first and foremost remain solely on the historical goldmining aspect of the site. This is a view I vehemently disagree with given the very special and unique nature of this local asset and I invite your own views with regards the issues and concerns expressed above via email deb_taylor142@hotmail.com

May kicked off with a bang when, on only the second day of the month, Joy Georgeson and I were enjoying a late afternoon walk around the goldfield. Just before dusk the raucous alarm calls of wattlebirds, currawongs,



satin bowerbirds, pied butcherbirds and several small bird species alerted us to something lurking in the scrub. Suspecting a goanna, or possibly a snake, to be the cause of such a commotion we moved cautiously through the bush in search of the offending culprit and were surprised, and delighted, when we spotted an **Australian Boobook**. The owl was under constant swooping attack from the other birds and moved to a different tree several times as it attempted to escape the onslaught, always perching high and in thickish vegetation that could afford it some protection from the relentless attacks. The alarm calls and attacks continued for about 20 minutes, but ceased when the sun set. The "culprit" is shown at left as it tried to shelter itself from the constant attacks.

The Australian Boobook, also known as a Mopoke or simply a Boobook, is the smallest and most widespread of Australia's eleven owl species. The bird's common name is derived from its distinctive two-note *boo-book* call which can be heard over distances of up to 1 km. Although its habitat ranges from forest and open woodland to scrubland and semi-desert areas the Australian Boobook resides mainly in eucalyptus forests. For this reason it is scarcer in arid regions but it has adapted to landscapes altered by human activity and is frequently found in farmland and suburban areas as long as some scattered trees are present. Like all owls, the Australian Boobook is generally nocturnal but is sometimes active at dawn and dusk, especially on dull, overcast days. The bird feeds on insects, spiders, small mammals and birds. Flying prey such as large moths and small bats are taken in mid-air while ground dwelling prey such as mice, rats and cockroaches are pounced on. Compared with other owls a larger proportion of the Australian Boobook's diet is made up of insects, spiders and other invertebrates. Fieldwork near Canberra found that vertebrates such as mice made up more of the birds' diet in autumn and particularly winter, most likely because invertebrates are less numerous during these colder months. The Australian Boobook nests in vertical tree hollows with a preference for those found in eucalypts or, occasionally, Coastal Banksia (*Banksia integrifolia*). These nest sites can be used for up to 20 years. Most breeding activity occurs in October but can take place anywhere between September and February. Only the female incubates the clutch of 2 to 3, occasionally up to 5, eggs. During the incubation period the female is fed by the male but she does leave the nest at dusk for about 30 minutes each day to bathe and stretch her wings. Eggs hatch after 30 -31 days with both parents, and sometimes a second female helper, feeding the young. Fledglings leave the nest after 5 to 6 weeks and live in their parents' territory for a further 2 to 4 months before dispersing. During the day the Australian Boobook roosts in trees with each individual having several preferred roosting sites. As was observed by Joy and I, the owl is often mobbed by passerine (perching) birds when at these roosts.

Large moths such as those pictured below are preyed on by Australian Boobooks. The moth at left is a male Beautiful Leaf Moth (*Gastrophora henricaria*) and the one at right is a male White-stemmed Gum Moth (*Chelepteryx collesi*). Although I took both of these photos neither was taken at Montreal Goldfield but the Beautiful Leaf Moth has been recorded on site several times, and the White-stemmed Gum Moth recorded as being present locally (at Beauty Point) and therefore also likely to be present on the goldfield. The White-stemmed Gum Moth is also commonly known as the Batwing Moth because, with a wingspan of between 14 and 16 cm, it is so large that it is often mistaken for a bat when in flight.



Note – Previously known as the Southern Boobook this designated common name was changed to Australian Boobook in 2019 by the International Ornithological Committee when taxonomic work separated some Indonesian populations of the bird into subspecies. For those of you on the mailout list I have attached an article at the end of the Journal explaining, in hopefully simple terms, both taxonomy in general and the processes of taxonomic changes as has occurred in the case of the Australian Boobook. There is, of course, no obligation for you to read it if it is not of interest.

In further avian news both **Glossy Black-Cockatoos** and **Gangs-gangs** were again observed on site this month. Both species were observed before the commencement of fire mitigation work (they have not been seen since) and in each instance were feeding in family groups. As hoped for last month I'm thrilled to report I was able to get photos of both the Glossies *and* the Gang-gangs huzzah! In addition to the birds I also found a further four Glossie feeding sites on the goldfield, bringing the total number of feed sites at Montreal up to five. The photos below show one of the Glossies which made up the group of two adults and a juvenile feeding in *Allocasuarina littoralis* trees and the chewings left on the ground at one of their other feeding sites.



The Gang-gangs were feeding in *Eucalyptus sieberi* (Silvertop Ash) trees in a group of what, I think, were 4 adults and two younger birds. Gang-gangs are endemic to south-eastern Australia. In the summer months they are mostly found at higher altitudes where they breed and raise their young in the moist, dense eucalyptus forests of the Great Dividing Range but they fly to lower altitudes when the days cool down and shorten to spend the autumn and winter months in more open forests and woodlands. Gangs-gangs are gregarious but relatively quiet cockatoos and form close, monogamous pairs. During the breeding season they feed in these bonded pairs or in small family groups but outside of this period, especially when they are overwintering at lower altitudes, flocks of up to 60 birds can be seen feeding together. Their main source of food is the seeds of native trees and shrubs, especially those of eucalypts and wattles, but they will also feed on nuts, berries and insects and their larvae. In urban areas they are often seen feeding on the berries of introduced hawthorns and cotoneasters. Breeding takes place between October and January. The female selects a hollow in a suitable tree and both sexes prepare the nest for egg-laying by chewing at the sides of the hollow. The resultant woodchips and dust is used to line the nest. Between one and three, but usually two, eggs are laid and hatch after 30 days. Both parents share in the duties of incubation and caring for the young until they leave the nest at the age of 8 weeks. After fledging the parents continue to feed their young for a further four to six months. During this time crèches are sometimes formed, especially where pairs have nested close together, with the young from 2 or more pairs roosting together in the same tree while their parents are foraging. The quiet but distinctive call of the Gang-gang has been described as sounding like a creaky gate, or the sound of a cork being pulled from a wine bottle. They also often make a soft growling sound when feeding. **A fun fact** – Gangs-gangs almost always use their left foot to hold food when eating. Yes, I did check my photos of the feeding birds and yes,



they were using their left feet! If you're in need of proof see the photo at left ... definitely a southpaw!

Like the Glossy Black-Cockatoos, the conservation status of Gang-gangs is listed as vulnerable in NSW although nationally they are listed as endangered. Loss of older, hollow trees and feeding habitat across south-eastern Australia through land clearing has led to a significant reduction in the numbers of Gang-gang Cockatoos in recent years. In July 2021 an Australian Department of the Environment and Energy spokesperson stated that the population has declined by approximately 69% in the last three generations, or 21 years and that, in addition to this decline, the species had suffered direct mortality and habitat loss

during the 2019–20 Australian bushfire season. Between 28 and 36 percent of the species' distribution was impacted by the fires. Frightening and alarming statistics indeed! Pertinent to the Montreal Goldfield, in NSW the Gang-gang is protected as a vulnerable species under the Biodiversity Conservation Act 2016 (NSW). This protection status makes it a **Tier 1 criminal offence for a person or corporation to knowingly damage the bird's habitat**. Damage is defined to include "**damage caused by removing any part of the habitat**". Habitat is defined to include "**an area periodically or occasionally occupied by a species**". Given the amount of damage inflicted across the Montreal Goldfield this month, and given the presence of Gang-gang Cockatoos on site, one has to question the ethics and wisdom of the Bega Valley Shire Council when approving such work.

In mid-May, whilst conducting an inspection of damage across the Montreal Goldfield site, I and two others found a dead **Dusky Antechinus** lying at the edge of a track. Both the track where the animal was found and the vegetation beside it had been subject to bulldozer activity just prior to the discovery of the dead animal. Unlike its relative the Agile Antechinus (a previously recorded species on the Goldfield), Dusky Antechinus are rare to uncommon in the Bega Valley with only 5 other observations of the animal recorded in the shire. To find this animal at such low altitude and in such a coastal location is both extraordinary and significant as the animal is more commonly found in mountainous regions including Kosciuszko National Park and the Brindabella Ranges where they nest and feed in alpine heath and grasslands and, in winter, use well-worn pathways beneath the snow to forage for food and move between foraging areas. Away from these areas Dusky Antechinus are almost entirely reliant on dense forest understorey habitat for survival. It is widely acknowledged that the biggest threat to Dusky Antechinus populations is the loss of this complex understorey habitat due to controlled burns. I have been advised by the Montreal Goldfield Committee that just such a burn is planned through forest where the Dusky Antechinus was found. For this reason, and given the rarity of the animal in the Bega Valley Shire, I have written to Council asking whether it is prudent or warranted to allow such a burn to be conducted. I have also asked if the presence of Dusky Antechinus on the site should exclude at least this portion of Montreal Goldfield from any further planned fire mitigation work and/or burns. I will, of course, keep you updated on any outcomes re: my enquiries. A photo of the animal found at Montreal is shown below with apologies to any sensitive souls who may be upset by the sight of a dead animal – unfortunately, it is what it is. **Note** - The cause of this animal's death is undetermined. In all aspects it appears to be a healthy adult male with no signs of injury from predation or attack. Because its fur, body and

rather impressive testes are all in excellent condition, and given the time of year, I am inclined to rule out post-copulation stress – the major cause of death in male Antechinus - as the cause of its demise.

Antechinus belong to the **Dasyuridae** family of marsupials which also includes quolls, dunnarts and the Tasmanian Devil. There are 15 species of antechinus, all of which are endemic to Australia and resemble, at least superficially, mice or rats. For this reason they are often called “marsupial mice”. Antechinus are primarily insectivores and boldly hunt spiders, cockroaches and other insects. Some also eat fruit and flowers and a few, especially the larger species, will even eat vertebrates such as frogs, lizards and small mammals including other antechinus. The smallest antechinus is the Agile Antechinus (*Antechinus agilis*) and the largest is the Dusky Antechinus (*Antechinus mimetes*). In areas where both these species exist, such as at Montreal, researchers have noted that the behaviour of the Agile



Antechinus changes and it becomes more inclined to move and forage for food in trees rather than the forest floor. This is because their larger relatives, the Dusky Antechinus, will catch and eat them if given the opportunity. And you thought Christmas dinners at your place got ugly!

Going out with a bang - All antechinus, both male and female, reach sexual maturity at the age of 8 months and this is when their lives turn deadly. I'm sure many of you are aware of the antechinus' extreme and frenzied mating behaviour which, it seems, has reached almost legendary status. However, in researching for this article I have discovered that there is almost nothing normal about the breeding activity of antechinus, either male or female, and that the death of males post-copulation is just the tip of the proverbial iceberg when it comes to these creatures' fervent “live fast and die young” lifestyle. The type of mating behaviour observed in all 15 antechinus species, and which ultimately leads to the death of all males about 2 weeks after mating, is known as “big bang reproduction”. Big bang reproduction, also known as semelparity, is typified by the death of animals after a single reproductive event and is found in insects such as mayflies, in some spiders and in molluscs such as octopus. It is much rarer in vertebrates, occurring only in a few fish species like salmon and some trout species, and one lizard species, the Labord's Chameleon. Among mammals, it is known only to occur in insect-eating marsupials. The majority of these animals belong to the Dasyuridae family to which antechinus belong, but several South American mouse-opossum species also have zero male survival following breeding.

Antechinus breed between the months of June and September with northerly populations mating earlier in winter than their more southerly counterparts. Mating is timed so that the weaning of the young coincides with the seasonal explosion of insects as the weather warms. All females in a population come into oestrus at the same time, triggering a mating frenzy which can last for up to 12 hours as both males and females couple with multiple partners. Each mating, although brief, is a violent and noisy affair with much biting, kicking and hissing. A fortnight after this mating frenzy every male is dead, overwhelmed by the stress-related corticosteroids produced during the intense period of mating. This corticosteroid overload leads to immune system breakdown, internal bleeding, gangrene and other infections.

After mating, female antechinus store the sperm from their multiple partners in their oviducts for up to two weeks. This ensures that only the sperm from the strongest males will go on to fertilise eggs. Because of the synchronised breeding within a population 70% of the babies conceived in that population are born on the same day with the siblings from each litter having up to four fathers. Antechinus have the biggest litters of any Australian marsupial, averaging 8 to 10 babies although some species can have up to 14 and others as few as 6. Unlike most marsupials, female antechinus do not have a complete pouch but instead develop a flap of skin that covers her nipples and only becomes visible a few days before the babies are born. It is only on rare occasions that there are as many available nipples as offspring the struggle for "survival of the fittest" begins early for baby antechinus. The babies are born a month after mating and, like all marsupials, are born at an embryonic stage and are bright pink, furless and blind. They develop fur at 8 weeks and open their eyes shortly after. The young are left alone in the nest at 10 weeks and begin to eat solid food at 12 weeks. By the time they are 14 weeks old the young are completely weaned and travel outside the nest attached to their mothers back or belly and hanging on for dear life. By the time of weaning the litter weighs four times as much as the mother, who exhausts herself and loses weight as she carries her offspring out to feed. This exhaustion and weight loss results in the death of nearly all female antechinus after a single breeding season. It is estimated that only about 10% of females from smaller species, and 40% from larger species, live long enough to breed a second time and raise a second litter.

So, what is the driving force behind the antechinus' extreme breeding synchronisation and mating effort? No-one really knows, although it is hypothesized that sperm competition may be a factor. Whatever the reason, that fact remains that for antechinus mating is literally a once-in-a-lifetime event with all males dying at the age of eight and a half months and the majority of females dying at the age of 11 months.

I will finish this month's writings with an update on the clever, rock-wielding Golden Orb-weaver mentioned in last month's journal. So fond was I of this particular spider that I had named her "Newt" as homage to physicist Sir Isaac Newton. As Newt was heavily gravid and close to laying her eggs I *had* planned to monitor her offspring when they hatched to see if any of them had inherited their mother's extraordinary understanding of physics. I was horrified and heartbroken when I discovered that both Newt and the trees supporting her large web had been bulldozed. Yes, tears were shed ... not only because of the unnecessary and unjustified demise of a spider I considered a friend but for the missed potential to study and gain knowledge of the rarely observed and little understood use of rocks and other items by spiders. Vale Newt.

Before I bid you good folk adieu I feel I must emphatically state that all opinions expressed above are solely my own and in no way purport or reflect the opinions or views of the Montreal Goldfield Committee or any of its volunteers. I also feel I must apologise for the rather protracted writings and somewhat political leanings of this month's Journal. I will aim for brevity next month but can offer no guarantees.

Until next month stay well, get your flu shot if you haven't already done so and, as always, be kind to each other and the environment,

Deb

Note : Unless otherwise stated all photos used above were taken by me Montreal Goldfield during May.