

NATURA Far South Coast

Observing and understanding the flora and fauna of Bermagui/Wallaga Lake's forests and shorelines

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The festive busyness that descends upon us all during the Christmas/New Year period has seen me spending less time enjoying long, relaxed meanders through our forests, and more time embracing frenetic home-based activity than is my usual and preferred wont but fear not dear readers! Even without my regular rambles I have lots to share with you, thanks largely to some wonderful – and very obliging - invertebrates that stopped by in between the comings and goings of the more expected two-legged Christmas visitors and other preoccupations. Before I share some of these encounters with you I must thank you all for your patience and understanding over recent times, especially in light of the fact that last month's NATURA failed to materialise. I am more than a little hopeful that normal scheduling shall be resumed as we roll through the remainder of this new year. Personally, I am somewhat startled, and ever so slightly alarmed, that we already close to moving into the second month of 2024, and can only hope that the passing of the remainder of the year slows down slightly, if only to delay the inevitable arrival of yet another chaotic Christmas period.

The past several weeks have seen me cross paths with a number of surprisingly large, and not often encountered, insects. These insects included an impressively sized and very beautiful moth, a huge beetle with big, scary jaws and, by far the most unexpected find, a caterpillar that looked more like a big, fat stick than an actual living creature as it lay on the ground. I hope you enjoy reading about these natural wonders as much as I did observing, photographing and learning about them but, as fascinating as wonderful as these big things are, I'd like to start this issue by addressing a question I have been asked repeatedly of late ... namely, *how* and *why* do cicadas make so much noise????!



At left - The Razor Grinder (*Henicopsaltria eydouxii*) is one of the largest, loudest and most common cicada species in the Bega Valley Shire, and is the species I most frequently see and hear in our local forests and reserves. Unlike some of our local cicada species who prefer to bookend hot summer days with their serenades at dawn and dusk, the Razor Grinder calls throughout the heat of the day, and the rise and fall of their loud, distinctive buzz is a constant soundtrack to my days, both at home and when out and about. Although, like all cicadas, the Razor Grinder spends much of its life as an unseen and unheard nymph living underground for several years before emerging for a few short and loudly vocal weeks to mate, the local population of this species is sufficient to ensure its presence every summer, albeit in varying numbers. The species has certainly made its presence heard over the past few years with large numbers emerging again this year.

THE SOUNDTRACK OF SUMMER

Is there anything that screams "SUMMER!" more than the loud, strident songs of cicadas reverberating through the air? I think not. Although their seasonal cacophony usually begins in November here on the NSW Far South Coast, these insects don't hit their straps until the first hot days of December and then continue to

assault our ears through January and into late February or early March. For me, the sound of cicadas evokes fond and vivid memories of childhood playmates, rapidly melting lemonade Icy Poles and the strong smell of chlorine wafting over the fence from the next door neighbour's pool. Although now long in the past, these nostalgic interludes are a reminder of life's simple joys and I welcome them, and the cicadas that induce them, every year as the weather begins to warm.

At right – Cicadas belong to the large insect order **Hemiptera**. The insects in this order are typified by the presence of sucking rather than chewing mouthparts, and include species as varied in both size and appearance as aphids, lerps, planthoppers, assassin bugs, shield bugs and, of course, cicadas. Both the nymphal juveniles that live underground and the adult cicadas use their piercing and sucking mouthparts, known as a *rostrum*, to feed on the fluids that are found in *xylem*, the water-conducting tissues of plants. The nymphs feed on plant roots until they emerge as adults to feed above ground on the sap found in trees, woody shrubs, grasses and other plants. In the photo at right you can clearly see the rostrum of an adult cicada resting between the insect's legs and against the sap-filled branch of the young *Acacia* on which this insect will feed.



As a group, cicadas rank as one of the insects most easily identifiable by most people and even small children seem to have no trouble recognising and even naming common species. Although or possibly because everyone is familiar with them there is a lot about cicadas that arouses curiosity and I am often asked about them, especially at this time of year. Not surprisingly, many of the enquiries I receive concern their calls because, although it seems common knowledge that cicadas are the loudest insects in the world, exactly how or why they make so much so noise is less well known.

WHY DO CICADAS SING?

Before going into the technicalities of how a cicada manages to produce a sound that is more equivalent in volume to a heavy metal rock concert than the song of an insect it is worth pointing out that it is only the male cicadas that sing so raucously. These calls are made to attract a mate and can reach an ear-piercing crescendo, especially when many males are gathered in one place. Female cicadas on the other hand are silent 98% of the time but will make a quiet clicking sound or audibly flick their wings to let a potential mate know of her proximity, availability and willingness to mate. These mating response calls do not need to be loud because they are made only after the female has positioned herself close to her chosen mate, and are meant for his ears only. Indeed, as keen as a female cicada is to mate she is certainly no floozy and, unlike the males who will call far and wide to attract any or all females within earshot, she will only sing to and accept the advances of her one selected lover amongst the dozens of males that may be gathered on the one tree.

In addition to their mating and courtship calls both male and female cicadas make is a distress call. You have probably heard the rather panicked, rapidly clicking sound or sharp squawk of a cicada as it is pursued by or even worse, grabbed, by a hungry bird or other predator. This sound is also made if you pick up a cicada and hold it between your fingers. Such distress calls are heeded as a warning by other cicadas in the area who will respond by either calling loudly as a collective group to drive the predator away, or by becoming silent until the warning call has ceased and the threat perceived as gone.

HOW DO THEY DO IT?

The deafening songs of male cicadas are a quintessential and for some people, irritating, part of an Australian summer. In order to produce these loud, attention-seeking sounds, each male cicada possesses a pair of circular, ridged membranes known as *tymbals* which are located on their abdomen. Each of these tymbals contains a series of ribs that buckle one after the other as the cicada uses its muscles to lengthen and contract the membranes, with each buckling of a single rib producing a click. By successively and rapidly buckling the ribs up to 10,000 times a second these individual clicks blend together to produce a loud, seemingly



continuous buzzing sound. This sound is further enhanced by the male cicada's hollow, air-filled abdomen which acts like an in-built soundbox to amplify the insect's calls in much the same way as a drum does the larger the insect, the larger the soundbox, and the louder the sound!

At left – This male **Razor Grinder** (*Henicopsaltria eydouxii*) is in full song and, as indicated by the yellow bands displayed on the abdomen, is expanding and contracting his muscles to produce the harsh, buzzing sound that is unique to this species of cicada (compare this insect to the Razor Grinder shown on Page 1 which is at rest and not calling). As its name suggests, the sound produced by a Razor Grinder is not dissimilar to the noise of a grinder being run repeatedly to cut through a piece of metal and is just as offensively loud! As I can attest to, when hundreds of these cicadas are chorusing simultaneously the sound is loud enough to make your ears hurt and, if you happen to stand the wrong way, can fill your head with an uncomfortable and disconcerting buzz.

Interestingly, not all male cicadas possess or use tymbals to produce their courtship songs. Some of the smaller cicadas have special structures on their wings and back of the head which can be rubbed together to produce a sound similar to a pencil being drawn across a wire-mesh door. Mating calls produced in this fashion are akin to a fiddler drawing a bow across his instrument's strings. Other species, known as "tickers", communicate using a series of wing flicks which sound a little like finger snaps. The males of these species fly around, flicking their wings and listening out for a female wing snap in response.

At right – The cicada shown here is a male **Black Prince** (*Psaltoda plaga*) with the sound-producing tymbals clearly visible as pale patches on the sides of the insect's abdomen. The Black Prince is endemic to eastern Australia, with Bega acknowledged as the southern-most extent of its range. Although, with a wing length of between 38 and 47 mm, it is one of the largest cicadas to be found in the Bega Valley it is far from common, and I was very fortunate to have this one stop by for a visit in early January this year. The Black Prince inhabits forested areas near permanent bodies of water such as rivers and swamps, and shows a preference for tree species including mangroves, Broad-leaved Paperbark (*Melaleuca quinquenervia*), River Sheoak (*Casuarina cunninghamiana*) and Rough-barked Apple (*Angophora floribunda*). It will, however, also feed on various eucalypts. This cicada spends 7 years underground as a nymph, drinking sap from tree and plant roots before emerging as an adult. The adult insect lives and flies for 4 weeks with males calling continuously for a mate during that time.



HOW LOUD IS A CICADA?

It is a well-known fact that cicadas are the loudest insects in the world, but did you know that Australia has the loudest cicadas of all? And that it's not just one Australian species that holds the dubious record of the being the loudest insect in the world, but several?

Just how loud are the deafening courtship calls of a male cicada? VERY loud! Dr Max Moulds, an entomologist and senior fellow at the Australian Museum, has measured the calls of a male Greengrocer cicada at over 120 decibels at close range – that's the level of sound a jet makes when it is taking off! Razor Grinders and Double Drummers have also been measured at this volume. Even some of the so-called "quieter" species have been measured singing or more accurately, screaming at the top of their lungs to reach levels of between 70 and 100 decibels. To put those levels into perspective, consider the volume of power tools, blenders, lawnmowers, revving motorcycles and chainsaws running at full throttle and you'll be getting close to the nuisance value of a singing cicada chorus, especially when it goes on without reprieve for hours on end. Love them or hate them, it's hardly surprising that we can be left feeling a little overwhelmed and headachy at the end of a long, hot day when the cicadas have been chorusing from dawn until dusk.



At left – Reaching a volume of up to 120 decibels, the so-called “drummers” are among the loudest cicadas in not only Australia but the world. Although the renowned Double Drummer (*Thopha saccata*) has yet to be documented as present in the Bega Valley Shire I did stumble across a population of its similarly loud relatives - the **White Drummer** (*Arunta perulata*) shown here - during the summer of 2020 – 2021. The White Drummer is named for the prominent and distinctively large, white tymbal covers that are present on the male insects and allow for the production of a loud and constant rattle-like song that can carry over long distances. Consistent with the location of the population I observed, the White Drummer's preferred habitat is swampy forest and mangoves where they perch on trees such as Swamp

Sheoak (*Casuarina glauca*), Coastal Banksia (*Banksia integrifolia*) and Coastal Wattle (*Acacia longifolia ssp. sophorae*). The insects I observed were inhabiting a stand of *Banksia integrifolia* beside a lagoon. Because White Drummers are a rare find in the Bega Valley it is highly likely that they will appear only periodically, and probably after absences of several years. Although I have been checking for another emergence of White Drummers every summer I have yet to encounter the species again, and suspect that it will be another 3 or 4 years before I see and hear them again. I will, however, continue to check for them every year so that I can try to establish a pattern and time frame for their emergence.

WHY SO LOUD?

There are several reasons why male cicadas are so noisy but their primary motivation is to attract a mate. After years living a solitary life in complete darkness, each newly emerged cicada knows that it only has a few short weeks to mate and live the high life, and they certainly don't hold back. In order to mate as often as possible, the already loud cicadian Casanovas ramp up the volume and intensity of their song as they try to out-compete each other for the attentions of females ... the louder and more constant their calls, the greater their chances of attracting a female who will decide that he is “the one”.

Calling loudly as a group also affords cicadas from predators, and particularly birds, who love nothing more than a crunchy, munchy cicada for lunch. Because their sound bounces around when cicadas are calling collectively, individual cicadas can be difficult for a bird to find... it's a classic case of safety in numbers with the loudly distracting buzz of a cicada chorus enhancing the chances of survival. It could also be possible that birds find the commotion created by a host of simultaneously calling cicadas more than a little unsettling and may even be driven away from the area in which the cicadas have set up their summer bordellos.

It seems that it is not only us and the birds that find the calls of courting cicadas almost unbearable, but also the male cicadas themselves. Both male and female cicadas have membranous structures called *tympana* (singular – *tympanum*) which function as the insects' ears and allow them to detect sounds. In order to hear themselves think and avoid driving themselves to the point of permanent deafness, male cicadas can disable their ears by tightening their tympana when they sing. In other words, they activate their inbuilt set of noise cancelling headphones ingenious! Perhaps we *all* need noise-cancelling headphones at this time of year!?

While the male cicadas are blocking their ears, and we and the birds being driven to the brink of madness by the never-ending onslaught of noise, female cicadas are revelling in the attention-seeking wall of sound that is filling the summer air as far as they're concerned, the louder the better! Female cicadas use the loud songs of potential mates to not only select the one male with whom she will mate but also hone in on his exact location. The louder and more sustained the volume of a suitor's song, the more attractive as potential husband material the cicadian Romeo is perceived to be because, although we may disagree, female cicadas think louder means not only bigger and stronger but also irresistibly sexy. Louder songs also help the females pinpoint the location of their particular "chosen one" amongst a forest of trees filled with a hundred or more "lads", all of whom are screaming simultaneously for attention. I'm sure it's no easy task for a female cicada to navigate and negotiate her way through such a noisily confronting environment. The thought of it brings to mind my long-gone clubbing days which, in many ways, were not dissimilar to the position in which female cicadas must find themselves on a daily basis ... so much noise and so much boyish enthusiasm!

Having selected a potential mate, it must come as a relief to female cicadas everywhere that the male near whom she has chosen to settle does the polite and respectful thing and knocks the volume of his song back a peg or two. Although done for altruistic reasons, the male will shift to a quieter, more subdued courting song to draw the female closer. Regardless of his motivation for doing so at least it's better than continuing to shout in his partner's ear!

At right – Having selected a mate from the many potential suitors who have clamorously been throwing their voices at her, this female **Spotted Wattle Cicada** (*Galanga labeculata*) is now laying her eggs. Like all females of her kind, she is using her long, sharp ovipositor to cut evenly spaced slits in the branch of an Acacia tree. Inside each slit she will lay a single egg from which, in a few months' time, a tiny nymph will hatch. Immediately after hatching, each nymph will drop to the ground and then burrow into the earth so it can access the tree roots from which it will drink



for the next few years. As it progress through its nymphal stages, the young cicada will grow fat and brown and hunched as it tunnels and feed underground. Eventually, when the time is right, the nymph will dig itself out of its subterranean home and climb laboriously up onto a plant stem so it can break free of its Igor-like shell and emerge, moist and soft, in its final form a new and perfectly formed adult cicada.

To ensure that only females of the same species are attracted to and respond to the song of a male cicada each of the world's more than 3,390 cicada species has a unique song. Although the differences in these songs may not always be discernible to our ears, they are definitely recognisable to the female insects for whom the species-specific serenades are intended.

The songs of male cicadas can vary in frequency, cadence and pattern of clicks and pulses. Some species make a continuous sound. Others produce little pulses of sound in different combinations. Some species have a song that throbs loudly and rhythmically across the landscape while others variously hum, buzz or tick. Still others have song that rises and falls like a wave of sound, the volume increasing to a crescendo that then falls away briefly before beginning again. Many species, including the iconic Australian Greengrocer, have a warm-up sound that leads into their full-voiced calling song. Professor David Emery, one of Australia's few cicada experts, describes the song of the Green Grocer thus - *"It sounds like a rev-up at the start, like a brum-brum-brum. Then they move into the calling song which sounds like a long, monotonous burr."* Personally, I think Professor Emery has done an excellent job of describing the call of a Greengrocer because, as familiar as the sound is, it's no mean feat to put it into words. It does however help if, when reading the description, you also audibly imitate the sound of a revving car engine as Professor Emery did during his interview with an SMH journalist.

Such variations in species-specific acoustic signals as described above are achieved through differences in the size and shape of both the sound-producing tymbals and the abdominal cavity of different genera and species. Additionally, differences in the tymbal ribbing will alter the type and number of clicks that, when combined in rapid succession, produce the loud and sustained sound for which cicadas are famous. It's worth noting that, much like bird song or frog calls, cicada songs are sufficiently distinct to allow scientists and experienced amateurs to identify many species by call only.



At left - Unlike some cicada species that prefer to call at dawn and dusk, the **Redeye Cicada** (*Psaltoda moerens*) can be heard at any time of the day. The call of this species consists of two to twelve, but usually 6, revving sounds that have been likened to a yodel followed by a continuous, rattling sound. The yodel is made when the male cicada flexes its abdomen upwards and away from the bark on which it rests the insect shown here is doing just that and is in mid-yodel before he lets rip with a loud rattle.

Redeye Cicadas inhabit dry sclerophyll forests such as we have across much of the Bega Valley Shire. They typically settle on smooth-barked eucalypts and *Angophora* species but, as seen here, will settle for rough-barked species if more suitable trees are not available, or when competition from other cicadas is deemed too high on their preferred tree species. Although other local cicada species including the Razor Grinder can look similar, especially when viewed from a distance, Redeye Cicadas are easily identifiable by their distinctive red eyes.

Although there are thought to be between 700 and 1,000 cicada species present in Australia less than 300 of them have so far been officially named. Unusually for invertebrates, nearly all of the scientifically named cicada species also have a common name. Many of these common names directly reference the sound made by the male insects when they are calling to attract a mate with genera variously known as grinders, squeakers, squawkers, tickers, twangers and other similarly onomatopoeic monikers. Other common names are attributed to the children who, for generations, have delighted in and been fascinated by these seasonal insects. More often than not, the cicadas whose names evolved in backyards and schoolyard playgrounds across the country are known by their appearance rather than the sound they make and, with names as familiar as the Greengrocer, Yellow Monday and Black Prince, are typically the larger and more commonly encountered cicada species.

At right – The **Greengrocer** (*Cyclochila australasiae*) is the quintessential Australian cicada species and is, for many, the insect that first comes to the mind when the hum and buzz of cicada song fills the hot summer air. Although one of Australia's most common cicadas it is not a species I have encountered often here on the NSW far south coast. I photographed the Greengrocer shown here in late October 2020 shortly after it had emerged from its *exuviae* (nymphal shell), and I am still in awe of its magnificent and pristine beauty as it hung on my verandah railing patiently waiting for its wings to dry. Because, like many cicada species, Greengrocer nymphs live underground for several years before they emerge it is not unusual for these insects to be almost entirely absent from a given area during some years and much more abundant in others. Although I haven't seen another Greengrocer since photographing the splendid specimen shown here I'm sure it's just a matter of time until I can reacquaint myself with this iconic species.



Although often thought of as a completely different species, the **Yellow Monday** is actually a colour morph of the Greengrocer and as such has the same scientific name - *Cyclochila australasiae*. Even more curiously the Yellow Monday is not the only colour morph seen in Greengrocer cicadas with both a turquoise form, known as a **Blue Moon**, and a dark tan form, known as a **Chocolate Soldier**, recorded, albeit rarely. A fourth colour morph, the **Masked Devil**, is orange-brown in colour with a black mask across its eyes and is relatively common at higher altitudes. Regardless of their colour, all five of these colour forms share the same scientific name - *Cyclochila australasiae* – and have the same high-pitched call that ranks as one of the loudest cicada songs in the world. So how is such diverse variation possible in the one species? Yellow Mondays lack the blue pigment that make Greengrocers green while Blue Moons lack the yellow pigment. It's unknown what causes the variations seen in the Masked Devils and Chocolate Soldiers. Most forms have red eyes, but the eyes of a Blue Moon are purple blue how pretty! Unfortunately, we are highly unlikely to encounter any of the morph forms of the Greengrocer here on the NSW Far South Coast, with even the common green form observed infrequently.

SMALL CICADAS

Cicadas are usually thought of as large insects. While this is certainly true of many species, there are many others that can be easily overlooked because they are smaller, less noisy and much more difficult to find than the larger and more conspicuous ones. The cicada species shown below are all small but are just as easily

recognisable as a cicada as their larger and more familiar relatives. In fact, it's highly possible that you have seen some of these small cicadas in your own backyard or local reserve. It's also highly possible that, having seen one, you have mistaken it for some other flying insect due to its size or rather, lack thereof. Because I will be using forewing length as an indication of the insect's size when discussing the less familiar cicada species shown below I shall also use the forewing length of a Greengrocer cicada, a common and familiar species, as the reference point. The forewing length of a Greengrocer is between 50 and 58 mm.



At left - The Golden Twanger (*Diemeniana euronotiana*) has a forewing length of 13 – 17 mm and can be found in heathlands, grasslands with heath elements, riparian wetlands and swamps. Unlike other cicadas that I typically find on trees and shrubs, the individual shown here was found approx. 20 cm above the ground hiding quietly in long grass. This cicada species was an exciting find for myself and a friend, Joy Georgeson, when we both photographed individuals during a visit to Pambula's Panboola Wetlands in late January, not only because the Golden Twanger was a new species for us but also because it was a new species for the Bega Valley Shire on the iNaturalist data base. The call of a male Golden Twanger is an unmistakeable series of "twangs" followed by a low pitched sound

that is similar to a raspberry being blown "pbbbt". Although I have yet to hear this cicada calling, and although the species is very small and quite elusive, I at least now know what I should be listening for and where I should be looking in order to make future searches for this lovely little cicada easier,

Below from left to right - The Alarm Clock Squawker (*Paurosalta mneme*) has a forewing length of 20 – 26 mm. Also known as a "Ticker", this cicada has a call that consists of a series of soft clicks followed by a rattling buzz that sounds similar to an old-fashioned alarm clock. Each phrase has a short duration but with many repeats. The Alarm Clock Squawker is one of the first cicada species to appear each year and it is not uncommon to see them as early as October • the **Silver Princess (*Yoyetta celis*)** has a forewing length of 23 – 31 mm. This cicada species is typically found in association with *Leptospermum* (Tea Tree) species and occasionally with *Melaleuca* (Paperbarks), especially where they grow in clumps in open forest and woodland. The species can also be a common visitor to gardens. Because these small cicadas often fly as soon as they are approached it is usually only the departing insect that you see even though one or more may have been sitting right under your nose • Cicadas in the genus *Atrapsalta* are small, black insects known as **Bark Squeakers**. Although I have photographed bark squeakers often over the past few years, I have yet to get any identified to species level because all of the currently named species look similar. The bark squeaker shown below at the far right is typical of the *Atrapsalta* genus and has a forewing length of 15-18 mm.



EMPEROR MOTHS

The stunning moth shown here – an **Emperor Gum Moth** (*Opodiphthera eucalypti*) - arrived on my front verandah in between the thunderstorms that rolled through so spectacularly on Christmas night. My attention was drawn to it when it started flapping so loudly against the screen door that I initially mistook it for a small bat. This error is not as ridiculous as it sounds because, with a wingspan of 16.5 cm, this moth was about the



same size as the Lesser Long-eared Bat that I once had to rescue after it became snagged on the same screen door following an ill-judged moth pursuit, and which had flapped in a similar helpless and noisy fashion against the fly wire. Also, it was Christmas Day so my ability to differentiate between a large moth and a small bat *may* have been hampered by an over-indulgence in festive good cheer and one too many glasses of Prosecco.

Emperor Gum Moths belong to **Saturniidae**, a family of moths that contains some of the largest insects in the world. Commonly and collectively known as Saturniids, the moths in the Saturniidae family include species of emperor, royal and giant silk moths, many of which have large, distinctive eyespots on their broad wings. Although found over much of the world, the majority of the 2,300 saturniid species live in tropical or subtropical regions. The family is poorly represented in Australia with just 17 species recorded on iNaturalist, but this species count is brought into question when referencing my admittedly limited literature. For example, in their book "*A Field Guide to Insects in Australia*" (fourth edition published in 2021), Paul Zborowski and Ross Storey state that there are 15 species of Saturniid moths in Australia but Glenn Cocking, Suzi Bond and Ted Edwards write in their book "*Moths of the ACT*" which was published in 2022, that there are only 12 named saturniid species in Australia with an additional few species yet to be described. Either way, you can see just how underrepresented the moths of Saturniidae are here in Australia.

The Emperor Gum Moth is found over much of Australia but is far less common in the south where the climate is cooler. The larvae feed mostly on eucalypts, typically favouring the young adult leaves which are easier to digest, and grow to a length of up to 8 cm. Pupation occurs in a hard cocoon attached to the trunk of the larval food tree. Dependant on conditions, the resting period of the pupa can vary between 3 weeks and a year with adult moths emerging in summer. Because they have degenerate mouthparts and are unable to feed, the moths must rely solely the on the energy consumed as a caterpillar to fly and seek a mate. For this reason, their lifespan is limited to just a couple of weeks.



A REALLY BIG BEETLE

Although the **Poinciana Beetle** (*Agrianome spinicollis*) shown below may seem fairly plain and unexciting it was its *size* rather than its looks that really caught my eye. Measuring a whopping almost 6 cm in length this insect is way bigger than any beetle has a right to be, and I heard rather than saw it arrive at my front door when it crashed into a flyscreen just before midnight.



The Poinciana Beetle belongs to **Cerambycidae**, a family of beetles commonly known as Longhorns because many of the species have spectacularly long antennae. Within the Cerambycidae family, the Poinciana Beetle belongs to the subfamily **Prioninae**. Most of the beetles in this subfamily are heavily built, brown to black in colour and, as adults, nocturnal. The larvae develop inside damaged or dead trees and probably feed for many years on the dead wood of their host tree before pupating. When they emerge, and in direct contrast to their long larval lives, the adult beetles live for only a short time, perhaps a few weeks or even just days in some cases. In this short period of time the beetles must find a partner, mate, find a suitable host plant and lay eggs. For these beetles, life is brief but intense!

Although many of the species within the Prioninae subfamily have large, powerful mandibles it is thought that the adult beetles probably don't eat during their short lifetime. Rather than using them to feed, these beetles use, and in fact need, their fierce mandibles to chew their way out of their pupal chamber deep inside the log on which the larvae fed.

The Poinciana Beetle shown here is very much typical of the beetles within the Prioninae family, especially with regards its jaws. If you're wondering why I haven't taken a photo of this beetle in my hand as I did with the moths shown above to give some sense of scale, there's one very good reason these beetles bite! And they bite HARD!!!! I know this because the first time I encountered a Poinciana Beetle, in Cobargo in 2012, I both overestimated the benevolence of the large but seemingly humble beetle, and underestimated the strength of its jaws. I can't tell you how surprised I was, and shocked, when this beetle bit me on the finger. The pain was dreadful, blood was flowing and it took a hell of a lot of effort to convince the darn thing to let go. Needless to say, I am no hurry to relive that particular experience and now have much more respect for beetles big, small, humble or otherwise.

A REALLY, REALLY BIG CATERPILLAR

For the second time this month I must give a shout-out to my friend Joy and her excellent attention to detail because, although five of us were enjoying a walk around the Montreal Goldfield in early January, only she noticed the large caterpillar that was lying in the middle of the track along which we were all ambling. In our defence, the caterpillar *was* very well camouflaged, and even Joy admits she stopped only to take a closer look at what she thought was an oddly hairy stick. Needless to say, the excitement level was high when we realised that the "stick" was in fact a living thing!

The caterpillar shown here measured an impressive 13 cm in length. Given its large size and location on open ground it seems likely that, having eaten its fill of gum leaves, it was on the move and in search of a suitable place to pupate. But what exactly is this leviathan caterpillar, and what will it turn into?

This caterpillar is the larva of a **White Stemmed Gum Moth** (*Chelepteryx collesi*) and, as we saw for ourselves, is one of the largest caterpillars found in Australia. As wonderful as it



is, this caterpillar should come with a warning because it is covered in sharp *urticating* (nettle-like) hairs that can cause severe skin irritation when brushed against and are strong enough to penetrate human skin. Once imbedded, the barbed, brittle hairs are very painful and difficult to remove and if, lodged in the eye, can cause serious sight problems. When they pupate, the caterpillars push the hairs through the silk as the cocoon is spun. This affords the pupae excellent protection from predation, but also presents problems for anyone who, unaware of the danger, climbs the trees on which the large, leathery cocoons are located the hairs present just as much of an issue when protecting a cocoon as they do when protecting a caterpillar!

The large moths usually emerge in April or May. The males have a wingspan of about 14 cm and will often come to lights at night. The females are larger with a wingspan of about 16 cm but, unlike the males, seldom come to lights. Both the male and female moths fly during the evening, often at tree top level and flapping quite slowly. Because of their large size and flight pattern these moths are frequently mistaken for bats, and are often and commonly referred to as Batwing Moths. "Aha!" I hear you say. "Deb is talking about bats and moths in the same sentence again." And indeed I am guilty as charged but it isn't just me that sees the similarity between a small flying mammal and a large flapping moth. Unlike the Emperor Gum Moth mentioned early which was my error alone, even scientists commonly refer to a White-stemmed Gum Moth as a Batwing. You may be laughing, but I feel vindicated!

I have seen an adult White Stemmed Gum Moth only once, at Wandella in late May 2016. The moth, shown below, was a male that came to shed lights at around 8.30 pm and is seen here resting on my hand. I know this one is a male because it has *bipinnate* (feathery) antennae the females have narrow, simple antennae. Beside the photo of the moth I have included a second photo of the caterpillar, partly because it is so wonderful and partly so you can just how big and fat and chonky it is when compared against my hand. I should also mention that, balanced as it is on a piece of bark, this caterpillar was surprisingly weighty. It must have eaten a lot of gum leaves to reach such a size! Note that I am NOT handling the caterpillar remember those hairs!



A short and final note on cicadas before I sign off on this month's NATURA all of the 10 cicada species featured in this issue are species I have observed in the Bega Valley Shire, and all of the photos accompanying the text are ones that I have taken. Although the 10 species mentioned give a good overview of the diversity found within our local cicada populations, it is in no way a comprehensive list and there are many more species I have yet to document. I will of course keep you updated on any future discoveries.

Until next month, be kind to each other and the environment,

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