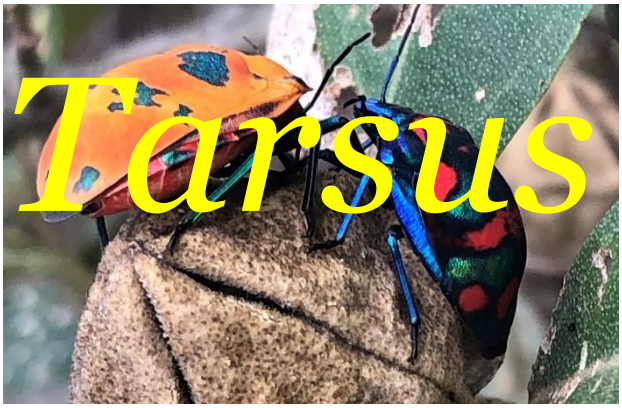


February 2026

Issue

No. 644

CIRCULAR OF THE ENTOMOLOGICAL SOCIETY OF NEW SOUTH WALES Inc

Hello Members,

This edition has a number of interesting items from members which I hope you will enjoy. David Flumm has provided commentary on his trip to Cocos Islands and the loss of butterflies there. Dinah Hales has provided two interesting observations butterflies and bees. Eleanor Drinkwater has reached out from Western Sydney University asking for assistance with their bogong moth study. Although belated Sydney Rare Books reached out on their rare book auction in February. Unfortunately this did not coincide with an edition of Tarsus but anyone interested in rare entomological books might like to peruse their catalogue.

Our Online Seminar Series, facilitated by Prof. Nigel Andrew was a great success last month with Jasmin Lau, our inaugural speak. This month (20 March at 11am) Georgina Binns will explore warning signals and chemical defences in Australian wasp moths. Make sure you get on-line for this interesting talk.

Once again, we can ensure that each edition of Tarsus is of maximum interest to members if we have members contributing articles or simple observations and photos as we see here from David Flumm and Dinah Hales.

This edition has some interesting hyperlinks to entomological stories on the net.

Kind Regards

Garry Webb

Circular editor

Entomological Society of NSW
Online Seminar Series

After our first successful online seminar, we will be continuing the Society's monthly seminar series. Jasmine Lau was our inaugural speaker. Jasmine was the 2025 Ted Taylor Award winner from the University of New South Wale. Her seminar was titled: **Dissecting *Austromiris*: Total evidence phylogeny and the redescription of an endemic Australian plant bug genus.**

We will block the third Friday each month at 11am for the online seminar. For the March seminar, Georgina Binns is our invited speaker.

Next Seminar: Friday 20th March 2026, 11am

Speaker: Georgina Binns

Seminar Title: What's *Amata* with this moth? Variation in warning signals and chemical defences in Australian wasp moths

Bio
Dr Georgina Binns is an Adjunct Fellow at Macquarie University, where she also graduated from her PhD in 2024 under the supervision of Prof Mariella Herberstein. Georgina is a passionate entomologist, teacher and crafter, and is currently working as a Biosecurity Entomologist at DAFF.

Abstract
Aposematism is a predator defence strategy that works most effectively when the warning signal is consistent within and across populations. During my PhD research, we found that the warning signal displayed in the wing spots of Australian wasp moth *Amata nigriceps* varies consistently around 12-25%, within and across population in New South Wales, and over the span of 120 years of museum collections. We also found that females have a significantly bigger proportion of wing spots than males, which led us to ask whether this sexual dimorphism correlated with their chemical defences. Using metabolomic analyses, we found that not only do female *Amata* possess defence chemicals that males do not, but females also have higher concentrations of the potential defence compounds that are shared with males. These moths serve as an excellent model for behavioural ecology, evolution and chemical ecological questions and deserve more attention regarding their systematics and taxonomy.

Where have all the Lepidoptera gone?

David Flumm

In January 2026 I paid my first visit to the Cocos (Keeling) Islands and Christmas Island in the Indian Ocean. Whilst the latter was brimming with insects of every kind including Lepidoptera, on Cocos I saw just one butterfly and six moths in seven days!

I visited Cocos between 02-09 January as part of a birding tour with Richard Baxter from https://birdingtours.com.au/ and I was out in the field from dawn to dusk every day looking for birds and other animals. As a keen amateur naturalist, I was looking forward to seeing a range of new species including butterflies and moths. However, despite spending time on the three main islands, West Island, Home Island and South Island I found only seven of these insects during our stay on Cocos and was initially puzzled why this was the case. Richard Baxter mentioned that the archipelago has recently been colonised by a wasp, the Yellow Oriental (Macao) Paper Wasp (*Polistes olivaceus*) and indeed we found it wherever we went. I have subsequently read that this invader, a "pest" from Indonesia, was first detected in 2015 but has now spread to all the islands after initial eradication attempts failed. As it preys mainly on "caterpillars, flies and spiders," this seems to be a likely cause for the dearth of soft-bodied insects now present in the Cocos. By contrast, it was interesting to see good numbers of grasshoppers and katydids (Orthoptera) with their hard, protective exoskeletons – and dragonflies (Anisoptera) too whose aquatic larval stages would be safe from attack. However, I saw no damselflies (Zygoptera) and very few flies (Diptera) so pondered whether these had also been taken by the wasps.

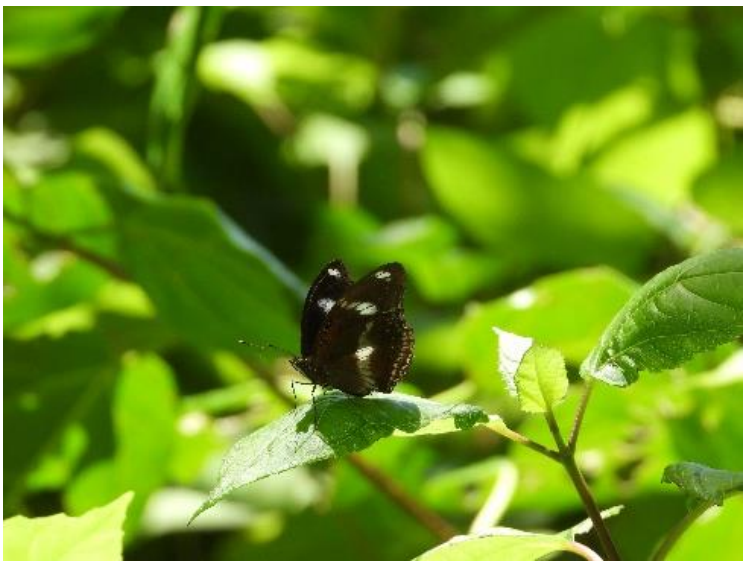


Figure 1 Great Eggfly, Home Island 03 January

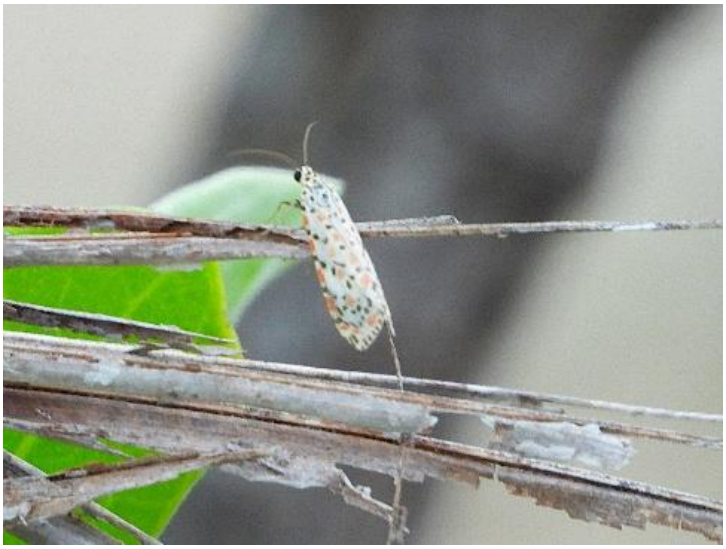


Figure 2 Heliotrope Moth, West Island 04 January

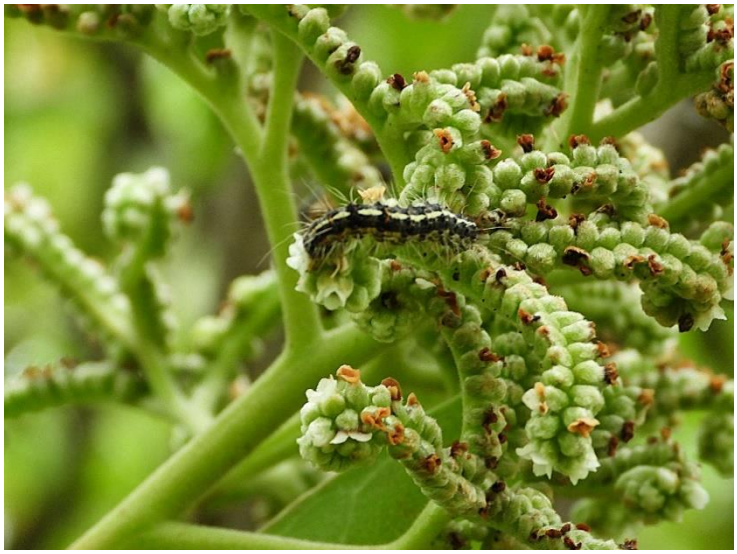


Figure 3 Heliotrope Moth caterpillar, West Island 06 January

Of interest, the one imago butterfly I saw was a Great (Varied) Eggfly (*Hypolimnas bolina*) and the first two moths I found were both Heliotrope Moths (*Utetheisa pulchelloides*). It is known that this particular moth is unpalatable and poisonous to birds, spiders and some insects as its larva feed on plants containing pyrrolizidine alkaloids which are highly toxic and are sequested into adult life. I wonder if the wasps have also discovered they are toxic and have learned to leave this species alone both in larval and adult stages. It may be no coincidence that the only caterpillars I saw also belonged to this species. I saw just four other moths: three *Gesonia obeditalis*, (which if confirmed would be new for the Cocos - at least there are no records on iNaturalist), and an unidentified species (see below).

Figure 4 Gesonia obeditalis, Home Island 07 January

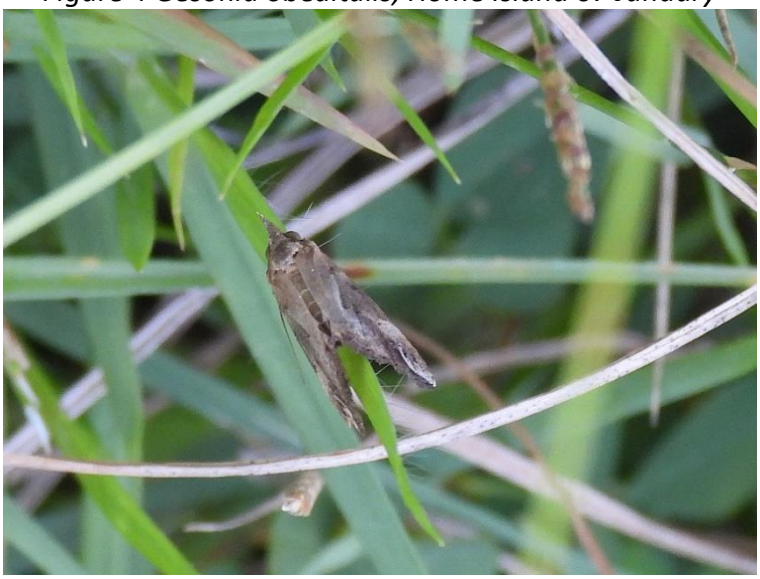


Figure 5 Unknown moth, Home Island 07 January

Although I have no proof that *Polistes olivaceus* is responsible for the almost complete eradication of Lepidoptera in the Cocos (Keeling) Islands, speaking to two regular birders, Bill Moorhead and Geoffrey Christie, I was told "*Years ago we used to see lots of butterflies here, Monarchs, Eggflies, Lesser Wanderers and the like*." It therefore seems unlikely these islands will ever be recolonised by Lepidoptera if this wasp persists but perhaps in time it will run out of prey.

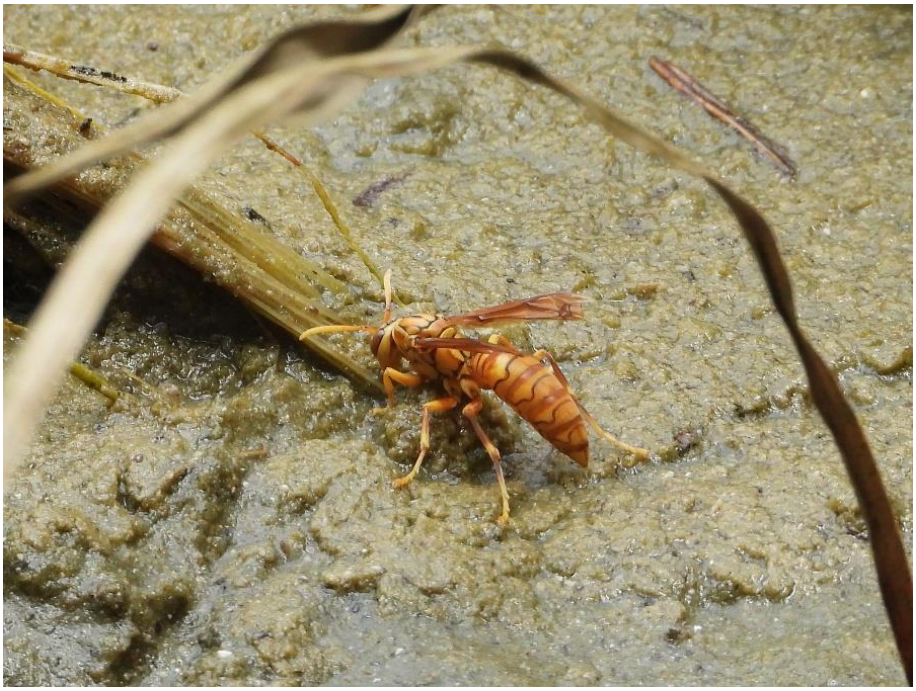


Figure 6. Yellow Oriental Paper Wasp, West Island 04 January

Acknowledgements

I am grateful to Richard Baxter, Bill Moorhead and Geoffrey Christie for anecdotal information on the demise of butterflies and the recent (2015) arrival of *Polistes olivaceus* and to Hans Wohlmuth for information on the toxicity of the Heliotrope Moth (*Utetheisa pulchelloides*) which I believe may be linked to their survival and continued presence in the Cocos (Keeling) Islands.

D S Flumm, 5 Homestead Avenue, Goonellabah NSW 2480

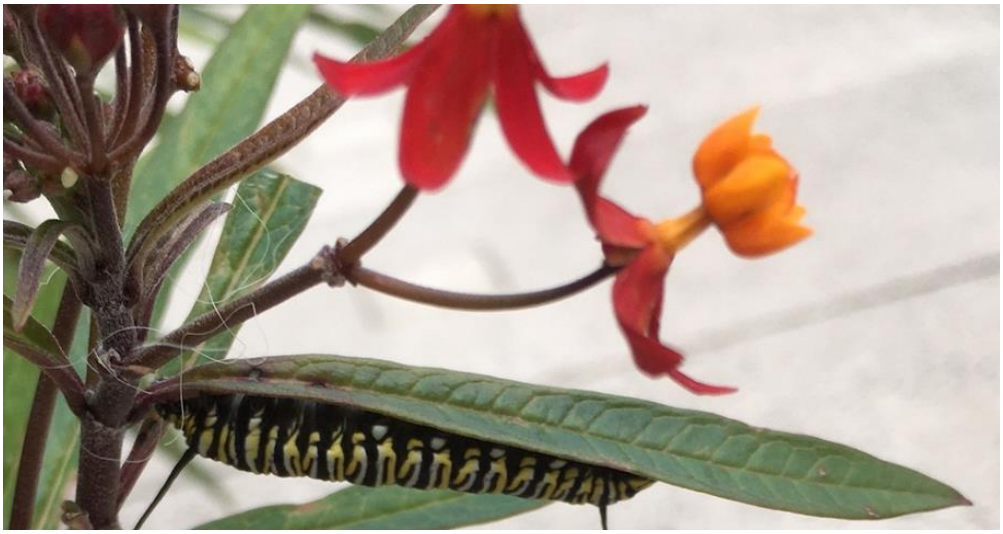
Clouds of Butterflies

Dinah Hales

During October and November this year I was struck by the unusually large numbers of small grey-blue butterflies and cabbage white butterflies (Pieris rapae) on the patches of clover in our back "lawn". No quantitative data were collected but I estimate that 50-100 grey-blue butterflies could be seen at almost any time during the day (sorry, no taxonomic data either). About 20 cabbage whites could be seen at any observation as well. I do not grow brassicas and doubt that any of my neighbours do either. We have nasturtiums, a sub-optimal alternative food plant, but no caterpillars or feeding damage were found. The white butterflies, at least, were drawn by nectar rather than larval food plants.

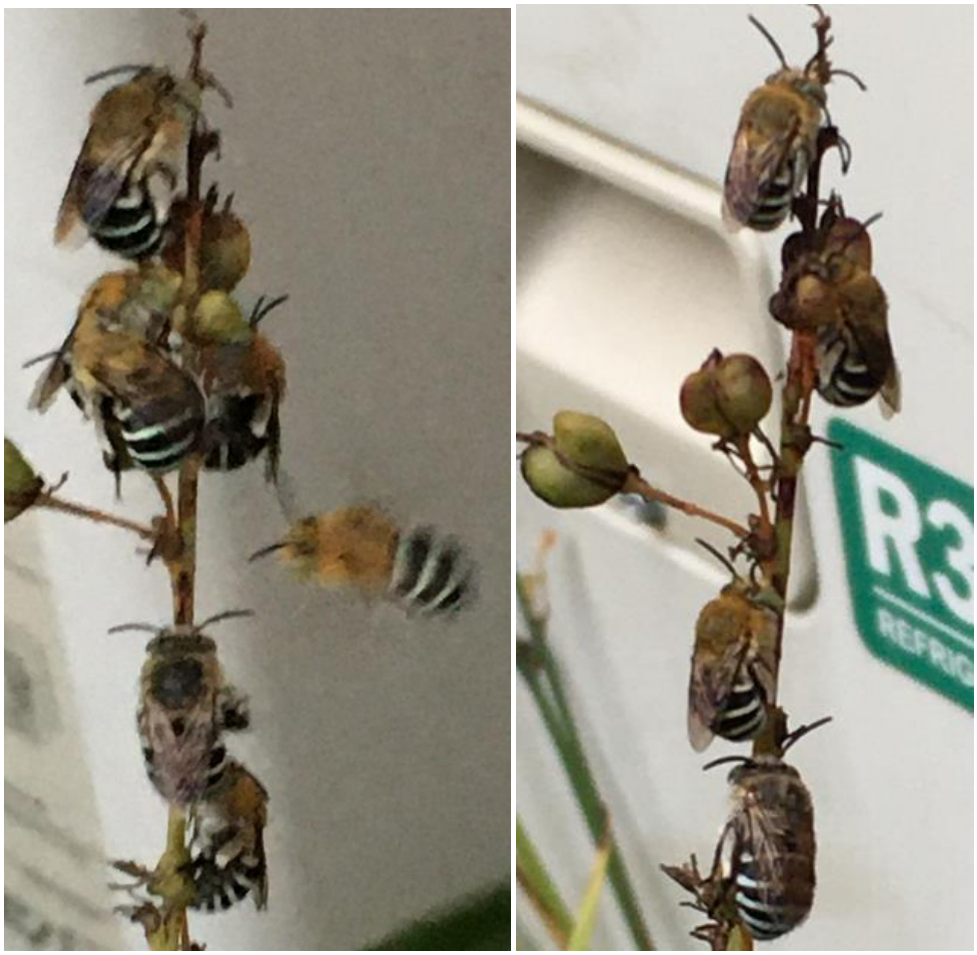
During the Society's Christmas function, I was chatting with Dominic May about this and he suggested that absence of honey bees in the wake of the varroa mite could have increased opportunities for butterflies. We agreed that the cabbage whites were probably using brassica weeds as larval food plants, and I mentioned my observations of these butterflies along the T9 rail corridor. It seemed that where butterflies were seen, there was always a yellow-flowering weed thought to be *Brassica rapa* (field mustard). We would be interested to hear of similar observations from others.

Speaking of butterflies in rail corridors, I have seen monarch butterflies (*Danaus plexippus*) breeding on isolated clumps of common milkweed between and beside the tracks near Strathfield station. The Goods Line walkway from Central Station to Haymarket has plantings of the red-flowered tropical milkweed. In 2022 these plants were almost entirely defoliated by monarch caterpillars. How nice would it be if more butterfly plants were planted in public spaces! But gardeners don't like the caterpillars and I have only seen a few monarchs on the Goods Line in the following years.



Blue-banded Bees

Dinah Hales



Male blue-banded bees *Amegilla cingulata* gathering to roost overnight on a spent flower stalk of spider plant, *Chlorophytum comosum.* Prior to roosting on 11 February, 20-30 bees were buzzing round the plants. Bees in possession were observed waving their white legs at the approach of incoming bees. Similar observations were made in Mosman (C. Sakkas pers.comm.). Could it be that the blue-banded bees are increasing in numbers post-varroa mite?

Observations on the following days showed a steep decrease in bee numbers, down to two on 22 February. Possible causes might be use of other roosting sites or bee mortality.

Photo 1 taken at Beecroft NSW, 7.55 pm, 11 February 2026. DF Hales. Photo 2: 6.58 pm 18 February 2026.

Bogong Moth Tagging Project

Dr Eleanor Drinkwater | Postdoctoral Research Fellow
School of Science, M15-G-65
Hawkesbury campus, located on Darug Country
E: E.Drinkwater@westernsydney.edu.au

Invertebrates Australia, in collaboration with Western Sydney University are launching a major Bogong moth tagging project this Autumn. The tagging is an attempt to track the movement of Bogong moths on their migration back to their breeding grounds. Once tagged the animals will be released back at their collection site. This work is important as we still have limited knowledge on where all the breeding grounds are in Western Victoria, NSW & Queensland. Without knowing where they are makes it difficult to protect their breeding habitat!

Ways you can get involved:

(1) Hst a bug lantern:
We are looking for expressions of interest from people across the South East who would like to help us look out for tagged Bogong moths next Autumn. EoIs can be submitted via our website: www.bogong.org. We especially need people from near Jindabyne, Canberra, Yass, Murrumbateman, Tumut, Khancoban, Gundagai, Adelong, Batlow, Talbingo, Tumbarumba, Wagga Wagga, Albury/Wadonga, Corryong, Beechworth, Myrtleford, Omeo, Bairnsdale, Mansfield, Bungendore, Braidwood, Cooma, Bombala, Crookwell. We absolutely welcome people from further afield if they are feeling inspired to help, but need to prioritise having sentinels close to the mountains because we have a limited amount of gear to loan to people interested in participating. We can train people in how to use the traps and record sightings and record so no experience is necessary. Preference will be given to people who can trap frequently (ideally nightly) in March, April and May 2026.

(2) Tag moths
We are planning the epic moth tagging trip for Feb 23rd for 2 weeks and are looking for helpers. We are looking for about 10 people for 1-2 weeks starting Feb 23rd. We can cover accommodation and food but probably not travel (but open to discuss if it's minor). Folks will be asked to tag about 50 moths per day at Arlberg lodge, Charlotte Pass. This involves momentarily knocking moths out with ice and CO2, removing a few scales from one wing with a cotton bud, and gluing a small paper disc onto the wing with eyelash glue. Interested people could also help with setting and collecting bucket traps, but the main job is tagging as many as possible over the period. We will have a large group and there will be much gentle frivolity, some epic Mt Kosci sunsets and bogong maelstroms! Get in contact with Kate Umbers at k.umbers@westernsydney.edu.au for more information!

Rare Book Auction

Dear Entomological Society of New South Wales,
We are having an auction this weekend with a number of old rare and interesting books on entomology.
I thought that you and your members may be interested in them.
Our website is https://sydneyrarebookauctions.com.au/ for more details.
Give us a call us or email us if you would like further details.
Kind regards
Ellie Aroney
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Sydney Rare Book Auctions
Address: C11 372-428 Wattle Street Ultimo NSW 2037 (We are located at the corner of Wattle street and MacArthur St Ultimo)
Postal Address: Sydney Rare Book Auctions PO Box 336 Glebe NSW 2037 Australia
http://sydneyrarebookauctions.com.au/
info@sydneyrarebookauctions.com.au
0476 765 906 (Office)
+61 476 765 906 (International)
Opening Hours: Monday to Friday 10 am to 5pm

NB. The auction has already happened. Unfortunately, it did not coincide with an edition of Tarsus. Members may still be interested in perusing their catalogue for entomological books of interest.

You may also like to check the website of Andrew Isles Rare books (https://www.andrewisles.com/). They also have an extensive range of entomological books from time to time.

New Entomological Research

(**Right Click** on the titles (or **CTRL Right Click**) to see the full articles)

Can beetles really be beautiful?

Meet 12 incredible-looking beetles that will make you rethink what a creepy crawly looks like. Discover some of the world's most amazing-looking beetles, from the giraffe beetle to the tortoise beetle. Brown or black, hard shells, and pincers - you know what a beetle looks like, right? Or do you? In fact beetles come in all sorts of astounding shapes, sizes and colours. Some are even furry and look supremely cute. But while you might not want to give any of these a cuddle, they may just change the way you think about beetles.

Invasive Ants Turn Bumble Bee Foraging Into Costly Battles

When bumble bees encounter invasive Argentine ants at feeding sites, they may defeat them in direct clashes but still return to the colony with less nectar. A single victory does not necessarily benefit the hive if it costs valuable foraging time. Bumble bees already face mounting pressures from shrinking habitats, disease, and pesticide exposure. Former UC Riverside entomology graduate student Michelle Miner set out to determine whether aggressive ants might be adding another layer of stress. "With how important bumble bees are as pollinators, it made sense to try and understand more about what's going on in these tiny nectar wars, because they could have a big impact," Miner said.

It floats, it's larger than a dinner plate and it's made up of more than 100,000 individuals

If you saw this circular raft floating down a river you'd be forgiven for thinking it was a discarded deep-dish pizza…Aside from humans, there are few architects more impressive than ants, says Will Newton. These diminutive designers are known for constructing some of nature's most spectacular structures, from interconnected, subterranean cities spanning 6000km, to pizza-sized rafts capable of floating down rivers for several weeks. As a group, ants comprise more than 14,000 species, all of which live in complex, cooperative colonies that, in some cases, are made up of hundreds of millions of individuals. Together, these colonies construct impressive structures, with 'workers', 'drones', and 'soldiers' working, and sometimes sacrificing themselves, at the behest of a 'queen' (or multiple queens in the case of 'polygynous' colonies).

Snake Fake

For a plump caterpillar with no defensive body parts, masquerading as a deadly viper is an effective adaptation for survival in the Peruvian Amazon. As a sphinx moth caterpillar (*Hemeroplanes triptolemus*) grows and molts, storing energy from the leaves it consumes, a kaleidoscopic blend of brown and white patches keep it camouflaged amidst the foliage it calls home. The larger the caterpillar grows, however, the harder it becomes to hide. Fortunately for this particular species, its final stage of development offers a new strategy for protection—one intimidating enough to deter even the most ambitious rainforest predator. At the slightest hint of danger—be it a stooping bird or pouncing lizard—the sphinx moth caterpillar begins its masquerade. Dangling from a twig, it reveals an underside patterned in faux snakeskin and eyespots that appear to glisten. By sucking in air through tiny holes in its surface, the caterpillar inflates its head to create the illusion of a triangular

skull swollen with venom glands. If the shape of a deadly snake isn't enough to startle away a hungry predator, the caterpillar will lunge as if to strike. And despite the larva's comical lack of any actual weaponry, the strategy appears to be effective. In experiments using artificial caterpillars made out of pastry dough, researchers have found that eyespots and a snake-shaped head can greatly improve a caterpillar's odds of survival among avian predators, even in regions where tree-dwelling snakes are rare.

When Termites Became Monogamous, A Surprising Thing Happened to Their Sperm

Termites reveal a startling consequence of long-term monogamy – the resulting lack of competition between the reproductive sperm of rival males led to the loss of tails in their sperm. This involved losing a suite of genes, which contributed to their complex shift from solitary cockroaches to mega-socialite termites, a new study found. So in a way, the loss of sperm mobility was the price these insects paid for their inbred mega-societies. "This work shows that understanding social evolution isn't just about adding new traits," says University of Sydney evolutionary biologist Nathan Lo, one of the study authors. "Sometimes, it's about what evolution chooses to let go." "Our results indicate that the ancestors of termites were strictly monogamous. Once monogamy was locked in, there was no longer any evolutionary pressure to maintain genes involved in sperm motility.

Ghostly scorpion among 23 mind-blowing images from Close-up Photographer of the Year

Discover the hidden worlds of dazzling beetles, jumping spiders, tropical corals and drifting squid. The overall winner and runners up of this year's Close-up Photographer of the Year (CUPOTY) have been revealed, with the top prize going to Australian photographer Ross Gudgeon for his stunning image of a cauliflower soft coral, captured in Indonesia.
Now in its seventh edition, CUPOTY shines a light on the extraordinary worlds often hidden in plain sight, using the power of macro, micro and close-up photography to transform how we see nature.

Woman discovers incredible phenomenon on doorstep in rural Australia: 'Really special'

In the past, bogong moths used to migrate 'in the billions', but in 2017 and 2018 those numbers 'collapsed'. A woman's rare discovery inside a ski resort apartment has brought good news for an endangered Australian creature that has been teetering on the brink of extinction for years. While most people wouldn't be thrilled to find insects scattered across their hotel room floor and furniture, the woman's encounter in Victoria's Mount Hotham, the country's highest alpine village, has triggered the opposite reaction. A photo shows dozens of bogong moths scattered across the floor of her lodge. They appeared to have shimmied their way in through a gap at the bottom of the front door.

Air Pollution Is Wreaking Havoc on Ants, And The Effects Are Alarming

Scent is essential to ant society: every ant within a colony wears the badge of membership in the form of smelly hydrocarbons. Human air pollution, a new study from Max-Planck Institute researchers suggests, is wreaking havoc on ant society by interfering with these characteristic scents. Each ant species' perfume is formed from stable alkanes, plus a colony-specific mix of alkenes. Unfortunately, these alkenes very easily react with ozone, an oxidant pollutant that has increased in the air thanks to human activity. Outside urban areas, ozone levels usually only reach concentrations of around 10 parts per billion, while city air can contain anywhere from 30 to 200 parts per billion, depending on pollution levels. "We wanted to know if exposure to increased ozone levels would alter the ants' odor

signature, resulting in aggression upon their return to the colony," the study's lead author, Nan-Ji Jiang, says. Indeed, it did. The team exposed ants from six different species to ozone-polluted air at a dose of 100 parts per billion, on par with polluted cities during summer.

Mystery Solved: Why Termite Kings and Queens Are Monogamous

Termites became social powerhouses by stripping away genes tied to competition and independence. This genetic shedding locked in monogamy, boosted cooperation, and paved the way for their astonishingly complex colonies. Termites rank among the most successful animals on the planet, building huge colonies that can reach into the millions. That success raises a basic mystery: how did insects with such sophisticated social lives evolve from solitary ancestors that resembled modern cockroaches? A new University of Sydney study points to an unexpected explanation. Termites did not become more socially advanced by adding new genes. Instead, they became more socially complex by losing genes, including genes tied to sperm competition. The results add fresh evidence to the long-running debate over whether monogamy is a key ingredient in the rise of complex insect societies.

Discover a delicate alliance between shrub, fungus and tiny forest guardians in the Amazonian understorey

Somewhere in the Amazonian understorey, beneath a great forest canopy, a cricket leaps on to the stem of a shrub. It's the last leap it will ever make. It never gets to flex its legs again. It's stuck, like fluff to Velcro. Dozens of tiny jaws appear on the plant's surface, each grabbing part of the unfortunate insect's body, holding it fast. Over the next hour, the spread-eagled cricket is dispatched, dismantled and butchered, piece by piece. Its body vanishes, seemingly into the plant's tissues. Yet the plant itself is not some kind of monstrous, carnivorous chimera. Instead, the insect's brutal treatment is meted out by the plant's own private army of ants. While fascinating, there is nothing unusual about a relationship between ants and a plant. Their lives have become intertwined in many ways, and there are so many examples that such relationships even have a name: myrmecophily.

Heat Waves Are Overwhelming Honey Bee Hives

Extreme heat is overwhelming honey bees' ability to keep their hives cool, leading to population declines. Honey bees are able to carefully manage the temperature inside their hives, but new research shows that extreme summer heat can overwhelm this ability. A study published in *Ecological and Evolutionary Physiology* found that prolonged high temperatures can disrupt hive cooling and cause sharp declines in colony populations. Studying Bees During an Arizona Heat Wave The research, titled "Negative Effects of Excessive Heat on Colony Thermoregulation and Population Dynamics in Honey Bees," examined nine honey bee colonies during an unusually hot summer in Arizona. Over a three-month period, outdoor temperatures often rose above 40°C (104°F). The findings suggest that stronger and more frequent heat waves pose a growing danger to honey bees and the pollination services they support around the world.

Scientists Found a Way to Make Crops Unappetizing to Locusts

By changing what crops eat, scientists found a way to make locusts lose their appetite and save harvests. "They're very destructive when there's a lot of them, but one-on-one, what's not to love?" says Arianne Cease. She is talking about locusts. Cease directs Arizona State University's Global Locust Initiative, where she studies how these insects behave and how to

reduce the damage they cause. While her work focuses on controlling locust swarms, she also holds a deep respect for the species she studies.

Mosquitoes Are Feeding on Us More Often – And Scientists Say We're to Blame

Some mosquitoes have become increasingly reliant on human blood, new research shows – and it's probably our own fault. A sampling study of the bloodsuckers in Brazil has found that as biodiversity drops, mosquitoes are more likely to hunt *us* down. It makes sense, really: As human activity pushes other animals out of the region, mozzies have fewer alternatives to feast on. The consequences are more dire than just an itchy annoyance, though. Mosquitoes are key vectors of disease, so a shift in preference for biting humans can have major health implications. Researchers from the Federal University of Rio de Janeiro and the Oswaldo Cruz Institute set up light traps in two nature reserves in the Atlantic Forest, Brazil, to capture 52 species of mosquito.

Bees May Tell Us if We Can Use Math to Talk to Aliens

Humans have always been fascinated with space. We frequently question whether we are alone in the Universe. If not, what does intelligent life look like? And how would aliens communicate? The possibility of extraterrestrial life is grounded in scientific evidence. But the distances involved in travel between the stars are vast. If we do contact aliens, it would likely be via long-distance communication, with our nearest neighbouring star being 4.4 light-years away. Even being optimistic, it would likely take more than ten years for any round-trip communication. How could that work when we have no shared language? Well, consider how we can engage with creatures here on Earth with minds quite alien to our own: bees. Despite the vast differences in human and bee brains, both of us can do mathematics. As we argue in a new paper published in the journal *Leonardo*, our thought experiment lends weight to the idea that mathematics may form the basis for a "universal language," which might one day be used to communicate between the stars.

Meet the springtails: little-known fantastic beasts that live everywhere on Earth

In virtually every piece of land on Earth – from near the summit of Mount Everest to Antarctica to caves nearly 2,000 metres underground – live tiny critters that have shaped the health of our planet for hundreds of millions of years. They are known as springtails – an ancient group of invertebrates that evolved along with mosses and lichens dating back to more than 400 million years ago. By taking a trip into their magical world, you will emerge from the forest with a newfound appreciation of the tiny and easily overlooked wonders that live with us.

City Life Forces Two Rival Hornets To Coexist By Changing What They Eat

Ecologists often cite a straightforward rule known as the ecological competitive exclusion principle: two species that rely on the same food resources should not be able to coexist indefinitely. Sooner or later, one is expected to outcompete the other. Yet in many urban areas of central Japan, two apex insect predators—the yellow-vented hornet (*Vespa analis*) and the Japanese yellow hornet (*Vespa simillima*)—manage to coexist. These hornets share nesting sites, foraging periods, and general behaviours, making their coexistence in cities somewhat unexpected. With urbanisation reducing prey diversity and simplifying habitats, the assumption would be that competition between them should intensify rather than ease. This contradiction prompted researchers at Kobe University to investigate the specific mechanisms that allow both species to thrive amidst the increasing ecological pressure.

Because visually tracking the feeding habits of hornets is extremely difficult, the team employed DNA metabarcoding, a technique that extracts and analyses genetic material from hornet larvae gut contents, to identify the prey species consumed. They combined this dietary information with detailed mapping of urban land cover within 500 metres of the nest sites, corresponding to the hornets' typical daily foraging range, to explore how urbanisation influences predator diets.

Simple DNA Switch Lets Butterflies Change Wing Spots

Scientists in Singapore have discovered a simple genetic mechanism that helps tropical butterflies to change their wing patterns with the seasons. The discovery of this tiny DNA "switch" that responds to temperature, offers fresh insights into how insects evolve the ability to sense and adapt to environmental changes. Insects often adapt in surprising ways to their surroundings. Some butterflies, for example, change their colours with the seasons. This seasonal flexibility, called plasticity, is vital for survival in unpredictable environments. Yet, the genetic basis for such flexibility has remained largely unknown. A research team led by Professor Antónia Monteiro from the Department of Biological Sciences at the National University of Singapore (NUS), has now identified a stretch of DNA that helps certain butterflies switch their wing patterns between wet and dry seasons.

As Australia bakes through an extreme heatwave, even insects aren't immune

Australia is baking through another extreme heatwave, with temperatures forecast to reach above 45°C for multiple days in a row across large swathes of the country. Heatwaves are a deadly threat to humans, disproportionately impacting older people and those with lower incomes. But it's not just humans that feel the heat. Many animals can withstand extreme heat through various behavioural responses. For example, dogs pant to cool down and koalas hug the coolest parts of trees. But when a heatwave occurs, the long periods of higher temperatures may be too much for some animals to handle. Tens of thousands of bats have been killed in heatwave events across Australia. Some birds can only survive a single day of extreme heat before succumbing. You might think cold-blooded animals, such as insects, will be fine, and will even thrive in the extreme heat. But this isn't always the case. Thankfully, insects such as ants, bees and beetles have a number of fascinating ways to keep themselves cool. With a few simple steps, we can help them, too.

Tropical Spiders Make Fearsome 'Puppets' of Themselves For Protection

Some spiders build delicate little nets, others colossal web megacities, and now some in Peru and the Philippines have been found sculpting giant doppelgängers out of silk, prey carcasses, and debris. This remarkable behavior has just been formally documented for the first time, based on a handful of discoveries dating back to 2012. "They don't just decorate their webs – they meticulously arrange detritus, prey carcasses, and silk into a structure that's not only larger than their own body, but clearly resembles the silhouette of a bigger, menacing spider," says ecologist George Olah from Australian National University. And when something threatening approaches their web, the creative sculptors jiggle threads to make their creations move like a giant puppet spider.

Jurassic Park Was Right: Mosquitoes Really Can Carry Libraries of Animal DNA

From missing dinosaur feathers to fictitious pack-hunting behaviors, many details of the Jurassic Park movie franchise belong firmly in fantasy. Yet, incredibly, the films' central premise may be more realistic than expected: Mosquito meals really can provide a thorough

ecological snapshot of the area they buzz about, new research from the University of Florida finds. "They say Jurassic Park inspired a new generation of paleontologists, but it inspired me to study mosquitoes," says entomologist Lawrence Reeves. Reeves, fellow entomologist Hannah Atsma, and their colleagues caught more than 50,000 individual mosquitoes, representing 21 different species, across a 10,900-hectare protected reserve in central Florida over eight months. Based on the blood contained in a few thousand females, the researchers found that mosquitoes' blood meals can reveal the presence of "the smallest frogs to the largest cows."

Are you a hellraiser mite or a knobbled weevil? Take the quiz and vote for NZ's Bug of the Year

The New Zealand velvet worm's reign as Bug of the Year is coming to an end, with voting now open for the 2026 competition. This year, 21 nominees are vying for the crown in the competition's fourth year. Nearly 100 bugs have so far featured, representing an incredible range of rich invertebrate diversity – from insects and arachnids to crustaceans, worms and molluscs. The term "bug" was chosen deliberately. While not scientifically precise, it acts as an easily understood umbrella definition of Aotearoa New Zealand's sometimes overlooked littlest animals. As relatively large organisms ourselves, we humans tend to notice and celebrate larger and more charismatic fauna and flora, such as birds and trees. But they comprise only about 5% of New Zealand's estimated 70,000 native land species. The rest are small and often unseen, but absolutely vital. Aotearoa is home to over 20,000 insect species – and those are just the ones we've identified. Around 6,000 beetle species alone crawl, burrow and fly across our landscape.

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