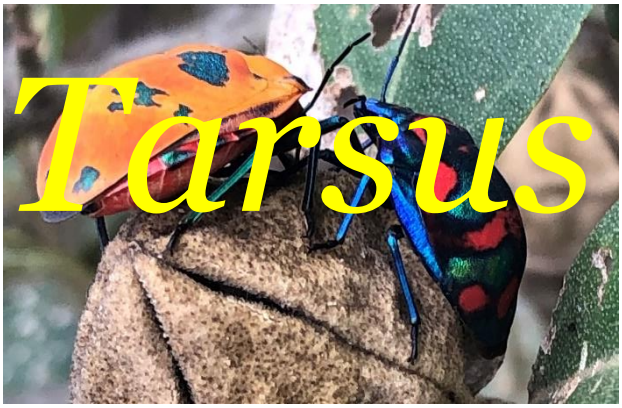

April 2024

Issue

No. 633

CIRCULAR OF THE ENTOMOLOGICAL SOCIETY OF NEW SOUTH WALES Inc

The next AGM of the society will occur in May and further advise will be despatched separately. The financial reports for the previous year are provided below.

In this edition Dinah Hales has provided an interesting article on women in entomology, together with a quiz and links to associated articles.

We encourage members to provided items of entomological interest to include in the newsletter.

We provide hyperlinks to entomological stories and research that may be of interest to members.

Kind Regards

Garry Webb Thomas Heddle

Circular editors

THE ENTOMOLOGICAL SOCIETY OF NEW SOUTH WALES Inc.

HONORARY TREASURER'S REPORT

MEMBERSHIP at the 31 DECEMBER 2023: , *(Totals in brackets are for previous year)

CATEGORY	FINANCIAL	UNFINANCIAL	TOTALS
Honorary Life	2 - n/a	n/a	2 (1)
Ordinary	47	1	48 (46)
Special ;	6	0	6 (7)
Student	14	1	15 (17)
Company Assoc.	1	0	1 (1)
Institutional	0	0	0 (1)
Totals*	**70 (65)**	**2 (8)**	**72 (73)**

Members Resigning in 2023:

David Emery

Marcel Sayre

Sunayana Sajith

Royal Entomological Society UK

Likely to Lapse;

Kirsten Ellis

Georgina Binns

Jennifer Anderson

New Members Joining in 2023:

William Arnold

Margo Carter

Chathuranga Dharmarathne

Kirsten Ellis

Caitlyn Forster

Satoko Rayson

Emily Schroder

Members to be Lapsed via AGM 2024 (excluded from above totals):

(Swami Thalavaisundaram - removed prior to 2022)

Barry A. B. Edwards

Sharon Towett-Kirui

Nazma Tithi

Kate Umbers

Prepared by Robin Parsons Hon. Treasurer, 17 April 2024.....17/4/24.....sgnd /date

Examined and accepted by: Hon. President, Robert Ryan.....19/4/24.....sgnd/date

BUDGET FORECAST & COMPARISON (INCOME & EXPENSES) FOR YEAR ENDING 2023:

(NB: * Combines items & $ values for both Publication (PF) & General (GF) accounts)

	Prior Year 2022		New (Current) Year 2023		Notes/adj	
Income Items - ↓	Forecast $	Actual $	Forecast $	Actual $	Note/value	Date
GF Membership Subs	2350.00	2454.60	2930.00	2722.35		
GF Contra/Adj/Other non-member income	0.00	0.00	0.00	250.00	+Ent Supplies Tarsus ad $240 +R Parsons dr error refund of $10.00	
GF Bank Interest	0.00	0.00	0.00	0.00		
GF Term Deposit Interest	0.00	0.00	0.00	0.00		
GF Donations	0.00	40.00	0.00	0.00		
PF Corp-Customers (Jnl income)	1060.00	700.00	410.00	590.00	Vol50	
PF Contra/Adj/other-(Postage)	0.00	0.00	0.00	0.00		
PF Royalties – Informit+EBSCO	150.00	140.75	112.94	112.94	Informit only	
PF Page Charges	0.00	0.00	0.00	0.00		
PF Other non-member income	0.00	0.00	0.00	0.00		
PF Bank Interest	0.00	0.00	0.00	0.00		
PF -GF Misc/Advance returns	0.00	0.00	0.00	0.00		
A - Income Totals	**3560.00**	**3335.35**	**3452.94**	**3675.29**		
Expense Items - ↓						
GF Room/Venue Hire	100.00	0.00	150.00	0.00		
GF Public Liability Insurance	870.00	1198.96	1200.00	1198.96		
GF Website Hosting	120.00	120.00	132.00	132.00		
GF Website Domain Renewal	29.00	29.00	0.00	0.00		
GF Website upgrade/other	330.00	0.00	330.00	0.00	Approval to 3000	
GF DFT Lodgement fee	50.00	48.00	50.00	50.00		
GF DFT Inc variation fees	0.00	0.00	0.00	0.00		
GF Postage/Stationery	100.00	58.00	40.00	0.00		
GF Contra/late reimbursement	**0.00**	**0.00**	**0.00**	**0.00**		
GF Prizes/Donation/Workshop	2000.00	0.00	1500.00	0.00	TTP 2023? Mcleay? Talk prize 14 Apr	
GF Bank fees OR Misc	30.00	0.00	15.00	0.00		
GF Tarsus/periodical printing	30.00	0.00	0.00	0.00		
GF Equipment (Computer/Photo) $?	0.00	0.00	0.00	0.00	Required 2023?	
PF Journal Printing	1500.00	1046.50	1200.00	0.00	**Vol 51 printed in 2024**	
PF Postage & Stationery	1500.00	747.39	560.00	292.20	Vols 50+51	
PF Contra/late reimbursement	**0.00**	**0.00**	**0.00**	**0.00**		
PF Advances-additional	0.00	0.00	0.00	0.00		
PF On-Line Publishing/Digital services agent	0.00	0.00	0.00	0.00		
PF Editorial Software Licences	275.00	0.00	600.00	0.00	Dr Gunning Acrobat?	
PF Overseas Bank fees OR Misc	66.00	0.00	15.00	0.00		
B - Expense Totals	**7000.00**	**3247.85**	**5792.00**	**1673.16**		
A Minus B = Deficit/Surplus	**-3440.00**	**87.50**	**-2339.06**	**2002.13**		

* 'Total Actual' reconciled to **Cash at Bank variation between last and current year**;

i) 31/12/2021 to & @ 31/12/2022; $22291.36 Less $22203.86 @ 31/12/2021 = **$87.50**

ii) 31/12/2022 to & @31/12/2023; $24293.49 less $22291.36 @ 31/12/2022 = **$2002.13**

Prepared by: Robin Parsons on 17 / 04 /2024 for **current year ending 31 December 2023**

Hon. Treasurer (Dated: 17/04/2024) .....Sgnd.

President/Council representative's notation/comments: .....Sgnd. 19/4/24

THE ENTOMOLOGICAL SOCIETY OF NSW INC

STATEMENT OF INCOME AND EXPENDITURE FOR THE YEAR ENDED 31 DECEMBER 2023

GENERAL FUND (& PAYPAL Account) – INCOME			
Subscriptions pd 2023 (+Tarsus advert fee $240+PayPalcr prior fee 7.65)		2,970.00	
Plus Subs pd in advance of 2023 in prior year		00.00	
Less Subs paid in advance of 2024*		00.00	
Subscriptions Receivable @ YE2023		90.00	
Less previous year Subs Receivable arrears		-380.00	
Bank interest (+ Term Deposit int $0.00)		0.00	
Donations /Misc: (PayPal Dr error recovered17Apr23)		10.00	2,690.00
- PAYMENTS			
TTP Prizes 2023 (paid in Feb 2024)		-0.00	
Public Liability Insurance 28 Jun 2023 to 28 Jun 2024		-1198.96	
Website hosting-Claridge - 2023		-132.00	
Website Domain renewal 2022 to 2023 (Paid in 2022)		-0.00	
Members payment to Publication Fund		-0.00	
DFT Incorporation Annual lodgement fee 2023		-50.00	
Stationary & Postage;		-0.00	
PAYPAL Account Receipt &Transfer fees		-7.65	
Website Upgrades-Claridge (now aptley)		-0.00	--1,388.61
	Result for 2023		**1,301.39**
PUBLICATION FUND - INCOME			
Journal Income Received-royalties 112.94+Page Charges Nil+Priv Subs 590.00		702.94	
Jnl Accounts Receivable; Infmit Royalties 2023 108.87+Priv Sub vol51 170.00		278.87	
Less Journal Income Accounts Receivable Credited prior year 2021		-522.94	
Bank Interest		0.00	
Members' payment (G/F) to Publication Fund		0.00	
Closing Journal Stock 31 Dec 2023 (100% deprec'n / Recovery @0.20 to vol46)		2,700.00	
Advances to be Recovered		0.00	3,158.87
LESS: PF Expenses = Costs of Journal			
Opening Journal Stock 01 Jan 2023		-6,200.00	
Postage & Stationary Vol 50		-292.20	
Editorial Software; Adobe AcrobatPro Licence to Oct 2023 for Jnl Editr's PC o/s?		-0.00	
Printing Costs (Arrowprint) Journal Vol 50 not published until 2024		-0.00	
Advances o/s		-0.00	-6,492.20
	Result for 2023		**-3333.33**
BALANCE SHEET AS AT 31 DECEMBER 2023			
ACCUMULATED FUNDS; Balance to 31 December 2022			29,394.30
Results for the year 2023	General Fund	1,301.39	
	Publication Fund	-3,333.33	-2,031.94
Balance to 31 December 2023			**27,362.36**
REPRESENTED BY: Cash at Bank	General Fund	22,351.32	
	Publication Fund	1,942.17	
	Term Deposit	0.00	24,293.49
Journal Stock-Committee's valuation			2,700.00
Debtors; Members Subscription arrears to 2023		90.00	
Accounts Receivable (Journal Payment arrears)		278.87	
Advances to be recovered		0.00	368.87
Less CURRENT LIABILITIES Members Subscriptions in advance (>2024)*		0.00	
Uncleared cheques (0), Contras/expenses Prior year/paid this yr (0)		0.00	0.00
Total Assets at 31 December 2023			**27,362.36**

Prepared by Mr Robin Parsons; Hon. Treasurer 17 April 2024; ..... Verified..... 19/4/24

THE ENTOMOLOGICAL SOCIETY of NSW INC

CASH BOOK & LIABILITY DISSECTIONS FOR PREVIOUS YEAR END 2022 & CURRENT YEAR ENDING 31 December 2023

PRIOR YEAR ENDED 31 DECEMBER 2022		CURRENT YEAR ENDED 31 DECEMBER 2023	
Cash book balance: General Fund	20759.93	Cash book balance: General Fund	22351.32
: Publication Fund	1531.43	: Publication Fund	1942.17
:Term deposit	0.00	:Term deposit	0.00
: PAYPAL Account	0.00	: PAYPAL Account	0.00
Cash (sub total) **(22291.36)**	**0.00**	Cash (sub total) **(24293.49)**	**0.00**
Plus Non cash Assets: Journal Stock 100% deprec'n / Recovery @0.20 to vol45 + Pro-rata Depreciated Vols 46 to 50	6200.00	Plus Non cash Assets: Journal Stock 100% deprec'n / Recovery @0.20 to vol46 + Pro-rata Depreciated Vols 47 to 51	2700.00
: Member Subscription arrears receivable to 31/12/2022	380.00	: Member Subscription arrears receivable to 31/12/2023	90.00
: Accounts Receivable Journal payment arrears	522.94	: Accounts Receivable Journal vol51 /Royalties arrears 2023	278.87
: Advances (floats) to be recovered	0.00	: Advances (floats) to be recovered	0.00
Less Liabilities: Member Subscriptions paid in Advance (>2023)	0.00	Less Liabilities: Member Subscriptions in advance (>2024)	0.00
: Unpresented cheques (0)+Contras/expenses prior year/paid this year(0)	0.00	: Unpresented cheques (0)+Contras/expenses prior year/paid this year(0)	0.00
Formula Count	**29394.30**	Formula Count	**27362.36**
Accumulated Funds balance at **31 December 2022**	**29394.30**	Accumulated Funds balance at **31 December 2023**	**27362.36**

Verification of Variation

Funds current year end 2023	$27362.36	Cash Balance current year end 2023	$24293.49
Less Funds balance prior year end 2022	$29394.30	Cash Balance prior year end 2022	$22291.36
= 12 month variation to Dec 2023	-$2031.94	12 month variation to Dec 2023	+ **$2002.13**

Prepared and certified by: Mr Robin Parsons, 17 April 2024

Hon. Treasurer;

Examined & verified by Council: sgnd/dated;

Name(s) Robert Ryan

Title: Hon. President 19/4/24

Minutes of the 70th Annual General Meeting

of The Entomological Society of New South Wales inc. *page 1 of 2;*

Hosted online via zoom (id 843 9052 3165) by Prof Nigel Andrew Southern Cross University Lismore on 15th May 2023

Opened: 5:00 pm

Attendance: Nigel Andrew (Host & Vice President), Dinah Hales (AES Rep), Robin Parsons (Treasurer), Bob Ryan (Chair/President), Graeme Smith (Web Manger), Gitte Strid-Nwulaekwe (Business Manager), Khalid Ahmad (Secretary), Thomas Heddle (Councillor), Stephen Fellenberg (Councillor), Robin Gunning (Journal Editor), Andrew Beattie (Member), Nicholas Farr (Member).

Non-member/visitor: None.

All members present or represented were financial and the quorum met.

Apologies: Kate Umbers, Robert Martin, Michael Bouffard, Garry Webb and Bernie Dominiak.

Minutes of the 69th AGM of 2022 were presented for acceptance as a true record by Robin Parsons and the motion was seconded by Nigel and accepted by all in attendance as a true record of proceedings.

69th Report of the Council presented by Hon. Treasurer for incoming Secretary; provided by Robin Parsons; was proposed for acceptance and seconded by Graeme and accepted by all in attendance. This report was abbreviated with most matters addressed within the Treasurer's 69th report and financial/Membership statements.

69th Report of Hon. Treasurer; The Financial Statements /membership statistics for year ended 31 December 2022 presented by Robin Parsons were accepted by all present. Account records and Books of Account were previously audited by Bob Ryan via a face to face, meeting with the Treasurer on 03 April 2023. **N.B. Treasure will endeavour from 2023 to prepare Private Subscriber/Royalties/other income report.**

Funds of approx. $23,500 to date were stable though the current and previous years were in annual deficit due to Web site upgrade & TTP prizes. Membership had increased to around 68 due to the new on-line website application facility.

69th Report of AES Representative – Dinah Hales: Two reports have been issued this year to the Australian Entomological Society (AES). However more information needs to be provided to Dinah by the Council on matters developed or acted upon for Ent Soc NSW during the year. The Treasurer suggested that a copy of Council Minutes should be emailed to Dinah.

In addition, Councillors and other members discussing matters electronically should ensure Dinah is cc'd into the email discussions; particularly for TTP, system enhancements and events.

69th Reports from Editors/Business Manager: No written reports have been received from these officers though the Journal Editor has advised the President that only two papers have been accepted for publishing (and none pending) into volume 51 of G&AE. The accounting/invoice/receipts functions for Private Subscribers to volume 50 have been completed by the Treasurer.

Election of the Council for 2023: (NB: No written nominations received)

POSITION	NOMINEE	NOMINATED by	SECONDED by
Hon. President	Bob Ryan	Robin P	Gitte
Hon. Vice President	Prof. Nigel Andrew	Bob	Dinah
Hon. Secretary	Khalid Ahmad	Robin	Bob
Hon. Treasurer	Robin Parsons	Graeme	Bob

Hon. Business Manager	Gitte Strid-Nwulaekwe	Robin P	Nigel
Hon. (Journal) Editor	Dr Robin Gunning	Bob	Nigel
Hon. Public Officer	Robin Parsons	Bob	Graeme
Hon. Circular Editor	Garry Webb	Graeme	Dinah
Hon. Counsilors (x4)	Bernie Dominiak	Robin P	Nigel
	Barbara May	Bob	Gitte
	Stephen Fellenberg	Robin P	Nigel
	Thomas Heddle (Co-Editor for Tarsus)	Bob	Nigel
Website Manager	Graeme Smith	Robin P	accepted by all
Event Co-ordinator (Dinner etc)	Mary-Lynne Taylor	Robin P	accepted by all
Representative for Australian Entomological Society (Myrmecia)	Dr Dinah Hales	Bob	accepted by all

General Business:

- Thomas advised that the on-line **Student talk competition for April 2023** was cancelled but will be rescheduled for April 2024.
- Nigel affirmed for Dinah and Council that despite the **TTP being put aside for 2023** that he will run the TTP prize for 2024.
- **Drawings for society emblem**: Stephen will obtain a contact for this matter.
- **Ku-Ring-Gai wildflower festival or Biodiversity stall:** Not addressed but not considered likely; Council confirmation pending.
- **70th year celebration for 2023**: Bob to discuss with relevant officers for project suggestions and preparations.
- The **Annual Dinner for 2023:** Members to be consulted (by Robin P.) as to whether a daytime venue at Ramsgate RSL would be a suitable alternative to the usual evening venue at The Epping Club; then referred to Mary-Lynne Taylor for venue booking & details.
- **Show and Tell/Chit Chat:** Dinah will send article on **Carabus auratus** to Garry for Tarsus.
- **Next AGM (71st):** tentative for Wed, 06 March 2024 6:45 pm.

Closed: 5:35pm (NB: Council's General Meeting postponed, Treasurer noting that current Council items requiring attention would be attended to via email between relevant Councillors and /or sub-committee members, as required; closed 5:36pm).

This document assembled on 13 December 2023 from AGM minutes by Mr Khalid Ahmad; Secretary, (& reviewed by Robin Parsons Treasurer) Signed as a True and Accurate Record: _____ (K. Ahmad) 13/12/23

_____ (R. Parsons) 13/12/2023

Verified as a True and Accurate Record by:

Mr Robert Ryan, Hon. President: _____ 30/01/2024 Page 2 of 2

Women in Entomology

Dinah Hales

I recently saw an article in *Australian Geographic* (Down and dirty: the Aussie women working in entomology, Angela Heathcote, April 24, 2018). I found it somewhat disappointing, as it seemed to imply that the young women interviewed were rarities, and that entomology was by definition "Down and Dirty". The article did not say a word about the many other successful women entomologists from the past and present. To my jaundiced eye, it seemed to be inadvertently perpetuating some negative stereotypes. It did recognise some career barriers that still apply to women (benevolent or not so benevolent sexism).

Government and institutional rules in the past often curtailed the careers of brilliant women. On marriage, for example, they were forced to resign. Mary Carver arrived in Australia in to take up a research scientist position in CSIRO in Canberra in mid-1954, but married at the end of 1955. End of full-time work. To maintain their jobs, sometimes young women married in secret (and were whispered about for "living in sin") or actually "lived in sin" to keep their jobs. Bad reputation for women scientists. The rules didn't apply to academics when I went for my first interview for a permanent position at Macquarie University, but I was asked whether I had a boyfriend. Implication: if you have a boyfriend you will get married and resign. The professor was quite conservative, told me that women shouldn't take men's jobs and should stay home and do their embroidery. But he gave me the job. Like Mary Carver, I did get married soon after appointment and when we had children my husband resigned. I did the embroidery after I retired. Enough of this.

What do you know about the careers of women entomologists? Here is a quiz. See how far you can get without cheating. I am sorry not to have included in the quiz more of the excellent women involved in cutting edge research and biosecurity work in DPI, in NSW and elsewhere. Feel free to write your own question and submit to the next *Tarsus*.

For answers see last page. If you don't know the careers of the earlier women, you'll find them remarkable. The American Entomological Society has run a program that discusses women entomologists and the barriers they face/d.

Quiz

1. Can you name the five women who have been president of the Australian Entomological Society?

2. I think there has only been one woman president of EntSocNSW. Name?

3. Name a woman who has been Chief of the CSIRO Division of Entomology.

4. Name some women entomologists who are or have been full professors at Australian universities.

5. Name a woman who, in the 17th century, set out from Europe with her daughter to Surinam for a collecting trip, supported by a government grant.

6. Name a woman who was sent out to Australia in the 19th century to collect insects (among other things) for a private museum in Germany.

7. Name a woman medical entomologist who was a Major in the AIF during WW2.

8. Name the American entomologist born in the 19th century who was the first female president of Entomological Society of America. What was her favourite group of insects?

9. Name the British entomologist famous for her work on fleas.

10. Name a woman who was leader of the NSW DPI Forest Science team.

Answer can be found towards the end of this edition of Tarsus

Links to other articles on women in entomology

Down and dirty: the Aussie women working in entomology - Australian Geographic
http://www.kateumbers.com/lab-news/

https://parasitesandvectors.biomedcentral.com/articles/10.1186/s13071-022-05234-6

https://entomologytoday.org/2022/03/24/mothers-entomology-history-reflecting-honor-insect-science/

https://www.sciencedirect.com/science/article/pii/S138993412300117X

https://www.worldwildlife.org/stories/celebrating-the-women-trailblazers-of-entomology

https://theconversation.com/hidden-women-of-history-eleanor-anne-ormerod-the-self-taught-agricultural-entomologist-who-tasted-a-live-newt-120158

New Entomological Research

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

Worst fall armyworm incursion on record costing farmers millions

Farmers are grappling with the most damaging incursion of fall armyworm (FAW) on record, and have likened the destruction to that caused by a bushfire. "Our area was hit pretty heavily with bushfires this season and a lot of the farmers are describing this [as] identical to a bushfire," Queensland grower Cameron Rackemann said. "They're losing entire crops and complete losses on inputs and there's no government subsidy or support for these farmers who've basically lost everything." Experts say the invasive insect, which originated in the Americas and reached Australia in 2020, is being detected at unprecedented levels in grain crops across Queensland and northern New South Wales. The 2023-24 summer sorghum crop, worth an estimated $1.5 billion, has been most affected, but other crops are also being targeted.

Wasp Nest Identification, Treatment and Removal

Wasp nest treatment and removal is amongst the more dangerous activities a pest manager undertakes. Although there are a number of common elements to wasp treatments no matter the species, there are certainly some specific considerations for some of the wasp species, especially for European wasps. Here we provide some tips on wasp nest identification, nest treatment and removal. Only a few species of Australian paper wasp cause issues around buildings. Identification is fairly straightforward as even without seeing a wasp, the nests have distinctive shapes that should allow accurate identification, especially when the location in Australia is considered. *Polistes humilis*, which is actually called the Australian paper wasp, is found across Australia, and also in the North Island of New Zealand. The nests are located in sheltered areas, under eaves and the branches and large leaves of foliage (Figure 1). The nest has an open structure (the cells are clearly visible) with the nest hanging upside down off a single stalk. The nests are relatively small, only accommodating several hundred wasps at its maximum size. An unusual behaviour of Australian paper wasps is that they reuse old nests – sometimes a queen will overwinter, but sometimes new queens will start a new colony in an old nest.

Biggest insects in the world, from a 60cm-long stick insect to a hefty 100g beetle larva

Given the sheer variety of insects in the world it is difficult to name the largest, says the charity Buglife, but here are our contenders for the world's biggest insects. Determining which insect is the largest is a tricky endeavour; the word large will mean many things depending on who you talk to. It could be the length of an insect or its weight, wingspan – maybe even general bulk. Consequently, we're going to have a look at a number of different species that could fall into the world's largest insect category and leave it to you to decide which you think comes out on top!

10 deadliest insects: The most dangerous insects to humans

Small but deadly! From disease spreaders to stingers to voracious swarms, read all about the world's most deadly and dangerous insects. There are plenty of contenders for the top 10 deadliest insects. Forget great white sharks and grizzly bears, insects are actually the most dangerous group of animals in the world to humans. This is in a large part due to their proficiency at carrying and spreading deadly diseases, from malaria to the black death. Many species of insect feed on vertebrate blood, putting them in a prime position to carry nasty bacteria, viruses, and parasites from victim to victim, and often from animal to human. This list of deadly insects will cover such disease carriers, as well as those that can kill through toxic stings and bites, and even by destroying our crops. Insects have been implicated in major history-defining events, from devastating plagues to colonial expansions, and their effects have shaped our own human evolution. Size really can be deceptive. Read on to find out more about the world's deadliest insects.

Are insects more active in the day or night?

After observing more than three million insects, scientists in Australia have "a definitive answer to the age-old question of whether there are more insects out at night or in the day". So, which is it? The first global picture of insect activity at night and day has been revealed thanks to a meticulous study, say scientists from the University of Western Australia. Led by Dr Mark Wong and published in *Nature Communications*, the research included the observation of more than three million individual insects. And the "definitive answer"? "Our global analysis not only shows that insect activity rises by a third (31.4%) during the night on average," says Dr Wong, "but crucially reveals key ecological factors driving patterns in insect activity across the Earth."

Ladybirds are meant to be lucky, but lucky for who?

'Look, a ladybird!' This was how it started. My family were staying the night in a bed and breakfast near friends in rural England – we had driven through a landscape the colour of butter to park under a hillside upon which the shadows of clouds passed like curtains closing. I was medicated, pleasantly, can you tell, in a hangover from the most painful migraine of my life, and the clouds reminded me of the visual aura that flickers across your vision just before the headache begins. We put our bag on a chair, and there, inside the window frame, was a ladybird. And then, look, there was another one. The children gathered, by the window ready to be enchanted. A group of ladybirds is called a "loveliness", which, to me, sounds suspicious. Sounds problematic even. As if they have named themselves. A "conspiracy" of lemurs, that's a good one, implies darkness, intelligence. A "bloat" of hippos, relatable. A "destruction" of wild cats, you've got a whole story there, beginning, middle, end. But a "loveliness", please. Perhaps it's my own must-work-on-it tendency towards tall poppy syndrome, perhaps I am inordinately disgusted by the ladybirds' cloying self-satisfaction – I find the term embarrassing. However, there it was, a loveliness, crawling all over the window frame.

"Shocking" – Moths Are Strangely Vanishing From Southern U.S. Cities

Insects of all stripes are in the midst of a vanishing act, a catastrophic sleight-of-hand occurring so rapidly that scientists can't keep up. Things get even trickier when you consider that insects have a complex life cycle with eggs, larvae, pupae, and adults. Are they all disappearing at equal rates, or are some faster than others? Few people have checked.

In a new study, researchers presented the results of a year-long survey in which they monitored the abundance of adult and larval moths in an urban, sub-tropical environment. It's the first time researchers have analyzed multiple life stages to assess the severity of ongoing insect declines. It's also one of only a few studies that have tackled the problem in lower latitudes, where extreme temperatures are pushing animals to their limit. "Subtropical and tropical environments have the greatest insect abundance and diversity and are areas seeing the greatest expansion of cities worldwide," said lead author Michael Belitz, who conducted the research while working at the **Florida Museum of Natural History**. "The urban heat island effect in these areas may be especially detrimental to insects."

Leafhoppers' secret armor has inspired new invisibility cloaking technology

In the realm of science, sometimes the smallest creatures can provide the biggest insights. Such is the case with leafhoppers, unassuming backyard insects that carry a secret armor of brochosomes. Researchers at Penn State have delved into this miniature world, uncovering the mysteries of particles known as brochosomes, which these insects secrete and coat themselves with. Their findings, led by Professor Tak-Sing Wong of mechanical and biomedical engineering, have been published in the prestigious *Proceedings of the National Academy of Sciences* of the United States of America (PNAS), marking a significant step forward in bioinspired optical materials.

Worker Ants Establish Foraging Arenas in the Spring

Spring is here! For homeowners, spring triggers panic when ants appear inside structures as ants begin their foraging season. For ants, spring is a critical time to locate foraging arenas and trails to meet the demands of the colony after overwintering. A foraging arena is an undefined area ants use to forage for food. According to surveys of pest management professionals (PMPs), three of the most common pest ants, carpenter ants (*Camponotus* spp.), odorous house ants (*Tapinoma sessile*) and pavement ants (*Tetramorium immigrans*), are encountered in early spring. This also coincides with the appearance of aphids and other homopterans that will be a rich food source for ants. Spring is the time of the year for worker ants to establish their foraging arenas that generally are established outside structures on plants as diverse as a rose bush to a tree where aphids, scales and other homopterans are feeding. Arenas vary in size and location throughout the season as populations of homopterans fluctuate and weather conditions change. Temperature, humidity, wind, rainfall and direct sunshine are factors in defining foraging arenas.

Spooky "Ghostly" Ant Named After Voldemort Is New-To-Science Species

A strange, ghost-like ant discovered deep underground has been declared a new species, with a shiny new *Harry Potter*-themed name to boot. *Leptanilla voldemort*, as the novel species has been called, is pale, slender, and prefers life on the dark side, much like its namesake. Just two specimens of the mysterious ant were discovered in the dark depths of the underground in Pilbara, north-western Australia. They have an extremely slender body as well as long, spindly antennae and legs, and long, sharp mandibles. This unusual morphology has raised lots of questions about the new species, but one thing seems certain: "*Leptanilla voldemort* is almost surely a predator, a fearsome hunter in the dark," Dr Mark Wong, lead author of a study describing the species, said in a statement.

Meet the deadliest and biggest wasp in the world

With its supersize proportions, the Asian giant hornet (*Vespa mandarinia*), also known as the northern giant hornet or the 'murder hornet', takes the title as the largest wasp in the world - as well as, obviously the biggest hornet. As its name suggests, it hails from East Asia, and lives in colonies, usually underground. The Asian giant hornet has a body length of approximately 4cm and a wingspan of 7cm — that's nearly the size of an average credit card. Plus, the 6mm stinger allows it to inject venom into any animal (or human) who threatens it. Those stung by this colossal insect have likened the pain to being stabbed by a hot needle. Despite its impressive sting, the species earned its nickname of 'murder hornet' because of a different anatomical feature: its powerful mandibles. These sharp appendages can easily slice through prey, usually honeybees and other social insects. In fact, the Asian giant hornet can destroy an entire hive by decapitating the bees and feasting on the unprotected pupae. If accidentally introduced, these hornets could decimate the local honeybee population, impacting pollination of wild plants and food crops. Scientists in the US and Canada continue to monitor sightings after several giant hornet nests were found (and destroyed) in the Pacific Northwest.

The mysteries of glow worms explained: what they are and why they glow

Like inch worms (moth caterpillars) and slow worms (legless lizards), glow worms are not worms. They are beetles, albeit very strange ones. The males are conventional enough, but the females are anything but. Lacking wings and retaining the heavy, segmented armour of the larvae into adulthood – more like flattened millipedes than worms, to be fair – they emit a greenish bioluminescent glow from the tips of their abdomens to attract mates.
Yes. It is in fact a bit of an oddity that, as well as the wingless female, the larva and the winged male of the glow-worm also glow. However, only the female glows brightly, and these are the 'grass stars' sometimes spotted in short turf on warm summer evenings.
It is generally accepted that the female glows to allow a male to find her for mating (female moths similarly release pheromone scents to attract partners in the dark). Why the male glows is still not known for certain – it could be an evolutionary hangover. There is also a theory that glowing evolved to serve as a warning to predators that these insects contain noxious chemicals and will therefore taste foul. This is analogous to the bright warning colours of wasps, in which case it would be advantageous for males and larvae to glow too.

Why the flies flurrying around your fruit bowl are not fruit flies

Vinegar flies can get out of control quickly. From ditching your fruit bowl to using apple cider vinegar, try these simple hacks to rid your kitchen of the of the pinhead-sized pests.
Most of us are familiar with the pesky little flies that hover around fruit bowls and food scraps or get tipsy floating in a glass of beer or wine. What is less commonly known is that these little bugs are NOT fruit flies: they're vinegar flies (*Drosophila melanogaster*), otherwise known as ferment flies. Some people may not even recognise "true" fruit flies – the ones that decimate orchards and threaten Australia's $16.25bn horticulture industry – because they're bigger than the vinegar fly they're commonly mistaken for. "Vinegar flies are tiny flies about the size of a pinhead and have red eyes," says Dr Brendan Missenden, senior entomologist at Queensland's Department of Agriculture and Fisheries. "Whereas true fruit flies are about the size of a housefly, so they're quite solid and chunky. Some people think they're wasps because they're brightly coloured with patches of yellow and patterned wings."

Murray Valley encephalitis virus spreads through northern Western Australia

Murray Valley encephalitis virus has been detected in mosquitoes in Western Australia's Pilbara region for the first time this year. Residents and travellers are urged to protect themselves against mosquito bites. It comes after a similar alert for the state's Kimberley region. Mosquito sampling provides an early warning for mosquito-borne virus activity, according to the WA Health Department. Managing scientist Andrew Jardine said the recent activity was not uncommon in northern WA at this time of year. "The Pilbara community and travellers to the area can reduce their risk of MVE by protecting themselves from mosquito bites" Dr Jardine said. "Thankfully, we've not had any community members contract MVE, but it is best to remain alert."

Inside the controversial world of classifying life on Earth

For centuries, taxonomists have catalogued every living thing they could find. Expeditions have traveled the globe, searching for unknown species; museums and universities maintain entire departments devoted to classifying specimens. But there exists no single, unified list of all the species on Earth. The lack of consistency in taxonomy has always bothered Stephen Garnett. Every 10 years, the conservation biologist has assessed the extinction risk of Australian birds. But he repeatedly ran into inconsistencies between lists: A single species might have multiple scientific names, or, conversely, a single name could refer to different organisms. The problem, he found, extended far beyond birds. Taxonomists in different fields didn't define species the same way, and classification systems were largely inefficient and poorly governed. Eventually, Garnett spoke with an ornithologist friend, Les Christidis, who shared his concerns. "And then we wrote this thing in Nature that got people stirred up," recalled Garnett. Their 2017 commentary in the prestigious science journal was inflammatory from the opening salvo: "For a discipline aiming to impose order on the natural world, taxonomy (the classification of complex organisms) is remarkably anarchic."

Frangipani trees in Darwin 'hammered' by exotic pest. Can ladybirds stop it from spreading south?

Frangipani trees across Darwin are getting "hammered" by an exotic pest called papaya mealybug. Since its discovery last year, the pest has spread across Darwin suburbs, impacting a range of host plants such as papaya, hibiscus and frangipanis. The NT government and Darwin City Council has just released hundreds of native ladybirds, in a trial that will hopefully reduce mealybug numbers and slow their spread. Principal entomologist Dr Brian Thistleton, said the ladybirds love to "feast" on mealybugs. "It's native to Australia and has actually been used world-wide. Overseas they call it the mealybug destroyer," he said. "There's populations of this ladybird already in Darwin, but what we've done is get extra from a biological-control supplier to boost numbers." He said the papaya mealybug arrived in Australia last year along with an exotic parasitoid, which also attacks the pest. "Between the parasitoid and the ladybird, the two together will hopefully bring the populations [of mealybug] down," he said.

Master of Disguise: The Ant-Mimicking Spider's Survival Strategy

A fossilized ant-mimicking spider reveals the evolutionary tactics spiders use to avoid predators, emphasizing the adaptive benefits of mimicry in the spider kingdom. Arachnophobia can make humans flee at the sight of a brown recluse, black widow, or even a daddy long legs, but animal predators of spiders know no such fear. That's why, paleobiologist George Poinar Jr. explains, some spider species have developed the defense

of deception. They masquerade as a much less desirable prey – ants – and Poinar's recent paper in *Historical Biology* presents an early record of an ant-mimicking spider in fossilized resin. "Ants are particularly good creatures for spiders to pretend to be – many animals find ants distasteful or dangerous to eat," said Poinar, who has a courtesy appointment in the Oregon State University College of Science. "Ants are aggressive in their own defense – they have a strong bite as well as a stinging venom, and they can call in dozens of nestmates as allies. Spiders, meanwhile, have no chemical defenses and are loners, which makes them vulnerable to being hunted by larger spiders, wasps and birds – predators that would rather avoid ants. So if a spider can be like an ant, it's more likely to be unbothered."

In praise of bees: the Cupid of the flowering world

Honeybees turn nectar into honey. Plenty of other insects drink the sweet energy drink produced by flowers to fuel their flight, but no other stockpiles a concentrated version of it to see it through the winter. And we've prized this natural sweetener for thousands of years for its culinary and medicinal qualities. Honeybees also secrete wax from a gland to construct their honeycomb home of hexagonal wax cells. And we have harvested it for centuries to make candles and seal documents. They live in large colonies consisting of foraging workers, male drones and an egg-laying queen, which are component parts of a system that operate together as part of a whole in what entomologists call a superorganism. Incredibly for a tiny insect, they can convey distance and direction in relation to the sun to their co-workers by performing a waggle dance, which allows the colony to forage more efficiently than by smell and vision. But honeybees are not the only clever bees. Rounder, hairier bumblebees, which live in smaller less structured colonies and whose plump appearance seems to defy the laws of aerodynamics, have been found to be able to learn complex, multistep tasks through social interaction.

These insects give off major red flags

Nature comes in wild colors, like the electric blue tarantulas and brightly spotted poison dart frogs. Named after bull fighters, matador bugs (*Anisoscelis alipes*) are known for vibrant flag-like red decorations on their hind legs. These insects are native to Colombia, Costa Rica, Ecuador, Panama, Venezuela, and Mexico, and scientists have been stumped as to what their signature red flags on their legs are used for. A study recently published in the journal *Behaviors Ecology* found that this fancy leg waving is actually part of the matador bug's elaborate defense strategy. n animals, some of the most obvious and showy traits are usually expressed by males, like an elk's large antlers or a peacock's loud plumage. A 2022 study suggested that matador bugs' leg movements were not a sexual display. Both male and female matador bugs like to flaunt their removable hind legs and the waving behavior did not change if there were potential mates around or not. It led researchers to question if their leg waving warns predators about a potential chemical defense and bad flavor or divert attacks towards their removable hindlegs to increase their chances of getting out alive.

Are termites contributing towards climate change?

Termites produce methane and methane is a potent greenhouse gas. So, are termites contributing towards climate change? There are certain challenges in calculating their impact, but researchers in Japan have recently updated the estimate of the global impact of termite-produced methane using the latest data sets and a biogeochemical model. In digesting wood, termites break down lignocellulose with the aid of their symbiotic gut

microbes. One of which, *Methanogens archaea*, produces methane. As a result, termite nests are methane-producing hotspots. Previous estimates of methane production by termites have used estimates of termite biomass and known rates of methane emission to generate a global figure for termite methane emissions. However, the rate of emissions in the different environments around the world are highly variable, depending on temperature, vegetation, land use and termite population, making accurate estimates difficult. Also, little consideration was given to how emission levels may change over time due to global and local environmental changes. This new study attempted to produce a more accurate estimate of global termite emissions using a detailed range of factors in the analysis plus the latest modelling techniques. It also investigated the factors that could be impacting the changing levels of termite methane emissions by carrying out simulations for historical and future periods. The study took into account factors such as climate, land use and vegetation productivity (using a biogeochemical model). The land area estimates of potential termite habitat were based on a temperature model, restricted by taking into account land area used for agriculture. This allowed a total termite biomass to be estimated.

The Impact of Climate Change on the Bio-Ecology of Subterranean Termites

Urbanisation is changing our world. Today, the relationship between termites and humans resembles something of a confrontation, thanks to prime areas of the earth's landmass being converted into real estate, for agriculture and development. Trade in wood and wood-derived products has also played a significant role in transporting termites across the globe. In this manner, invasive termite species have found new shelters in territories where they were previously unknown. The number of invasive termites has jumped from 17 to 28 in little over half a century (Evans et al., 2013). In light of this situation, it is important to know if climate change — a limiting factor in termite bio-ecology — will play a role in making them a greater concern. On a global scale, termite diversity is greatest in tropical areas and decreases with increasing latitude, and only a few termite genera are found beyond 40° latitude (Eggleton, 2000). It is observed that termite distribution and abundance is closely linked to the distribution and abundance of rainfall (Buxton, 1981), and temperature and relative humidity (Cabrerra, 1994). Also, termite foraging patterns are linked to physical rather than biological parameters (Moura *et al*., 2006). Studies have shown that foraging activities of *Coptotermes lacteus* correlated with both soil and air temperature (Evans and Gleason, 2001). In another study, the preferred soil temperatures of the western subterranean termite, *Reticulitermes hesperus* was reported to be in the range of 29-32°C (Smith and Rust, 1994), indicating that temperature is a dominant factor in determining termite distribution.

Are there any nocturnal butterflies?

Gaudy, sun-loving exhibitionists versus subtle, introverted creatures of the night – there's something of the yin and yang about butterflies and moths. But there are a few awkward characters out there that refuse to conform to expectations. Among the moths, no one could accuse cinnabars, burnets, clearwings or hummingbird hawks of skulking under the cover of darkness. But it's only in the past decade or so that it has been established that there are any nocturnal butterflies. The 35 or so species of the family Hedylidae, known as American moth-butterflies, have long puzzled taxonomists. Like butterflies, they rest with their wings open and have long, slim abdomens. But they have moth-like antennae and fly at night. In keeping with their nocturnal habits, they have developed a vision system that

utilises a suite of light-sensitive molecules similar to those of moths and they are attracted to artificial lights.

Uninvited Guests: How Asian Honeybees Are Defying Evolutionary Expectations in Australia
For over ten years, invasive Asian honeybees have defied evolutionary expectations and established a thriving population in North Queensland, much to the annoyance of the honey industry and biosecurity officials. New research published in *Current Biology* has shown the species, *Apis cerana*, has overcome what is known as a genetic bottleneck to grow from a single swarm into a population of more than 10,000 colonies over a 10,000 square kilometre area – which is about the size of Greater Sydney. Co-lead author Dr Rosalyn Gloag from the University of Sydney School of Life and Environmental Sciences said: "Our study of this bee population shows that some species can quickly adjust to new environments despite starting with very low genetic diversity relative to their native-range populations." Dr. Gloag said that high genetic diversity is generally assumed to be important for a population to quickly adapt to changing environmental conditions, such as when a species is translocated or experiences rapid environmental change caused by natural or climate change disasters.

Aussie town on alert after invasive pest with 'painful, venomous sting' found
An invasive pest with a "painful, venomous sting" that can cause blindness has triggered an urgent plea after being discovered in an Aussie town. Electric ants — also referred to as little fire ants — were recently found at the Yungaburra Waste Transfer Station in Far North Queensland, Biosecurity Queensland revealed on Thursday. The suspect ants were collected by the Tablelands Regional Council during a routine check as part of the National Electric Ant Eradication Program. With efforts already underway to trace the source of the infestation, authorities are now asking locals for help. "The program is calling on residents and landowners to register for their free yard check, to see if we can uncover these invasive pests, and commence eradication work before there is further spread," Biosecurity Queensland posted on Facebook. "Electric ants inflict a painful, venomous sting, kill and displace our native wildlife, and can blind animals." Authorities said almost half of electric ant infestations are found during yard checks, which take one hour, and are free. Some locals in responded to the request with shock, saying they had never heard of the pest. "Between the electric and the fire ants we are screwed," one person wrote. "Oh great, something else that can kill me," another added.

The arrival of the imported red fire ant (Solenopsis invicta) to Europe
Invasive species can have severe impacts on the environments to which they are not native. They can harm native biodiversity, alter habitats, and disrupt human activity. Of the many known invasive species, the IUCN classifies the red imported fire ant *Solenopsis invicta* as one of the worst ones. Native to tropical and subtropical South America, this ant species is now widespread through the south of the United States of America, the Caribbean, Mexico, Australia, Taiwan, and southern China. Menchetti *et al.* (2023) documented an extensive population of the imported red fire ant in Sicily, Italy, marking the first instance of an established population of *S. invicta* in Europe. While this population was first documented in 2022/2023, these ants have been in the area for several years (possibly more than 8), as locals reported suffering frequent ant stings in multiple localities since 2017 (Menchetti et al. 2024). Mitochondrial genotyping points to southern US, China, or Taiwan as likely points of invasion into Europe, considering their position in global trade. Menchetti *et al.* propose

that the imported red fire ant is likely to be able to colonize agricultural and urban areas in Europe alike, which is concerning considering the international connectivity of the coastal Mediterranean cities most suitable for *S. invicta*. This study highlights the necessity of early detection and action against the invasive imported red fire ant in Europe, which could include key contributions from citizen science. In this interview, Mattia Menchetti gives us further insights into their discovery of the Italian imported red fire ant population.

Adopt-a-tree program begins after trees destroyed by borer

A new adopt-a-tree and commemorative plaque program aims to help restore Claremont's green canopy as the polyphagous shot-hole borer continues to wreak havoc on Perth's trees. Claremont residents can sponsor the planting of a tree and also add a customised plaque with a commemorative message on behalf of family members or friends. Tree sizes and species that are considered more resilient to the destructive borer are available.

Ross River virus: more than 1,500 cases recorded in Queensland as mosquito numbers spike

Holidaymakers planning to head to the regions this Easter long weekend have been warned to cover up to avoid mosquito bites as Ross River virus cases surge, with more than 1,500 cases recorded in Queensland alone. Nine per cent of mosquito traps in Queensland, most of which were located in the state's south-east, have tested positive for the virus, which causes swollen and painful joints, fever and rash. The virus is spread from mosquitoes to humans but can't be transmitted from person to person. People usually recover a few weeks after the initial infection but some can experience symptoms for months. Dr Stephen Conaty from New South Wales Health said warm and wet conditions meant "significant numbers" of mosquitos were also expected in NSW over the next several weeks, particularly in the state's north. "Easter can be a busy time with people travelling around NSW to visit family or friends, spending time outdoors and engaging in activities like camping," Conaty said. "There is no specific treatment for these viruses. The best way to avoid infection is to avoid being bitten by mosquitoes."

'Wildly toxic' poison used on fire ants is killing native Australian animals

A "wildly toxic" chemical used to combat fire ants and the varroa mite in Australia is banned in Europe and harmful to humans – and it is poisoning waterways and killing native fauna, experts warn. Fipronil acts as an insect nerve agent and is banned for use on crops in the EU, China, Vietnam and California because of its effect on pollinators. The insecticide was used in sugar baits across New South Wales in the now abandoned fight against the invasive varroa mite and has been injected into 35,539 fire ant nests in south-east Queensland and northern NSW since January 2023 as part of the national red imported fire ant eradication program. But scientists are ringing alarm bells over its dangers, with a fire ants Senate inquiry last week warned about its deadly impacts on bees and other species and a lack of oversight by Australia's chemical regulatory body.

National Fire Ant Eradication Program rolls out across NSW Northern Rivers region

Residents and landholders across a 5-kilometre area of South Murwillumbah in New South Wales are being told to expect helicopters and crews of pest controllers as efforts ramp up to eradicate an incursion of fire ants from Queensland. The rollout of the ground efforts in the Northern Rivers region has already begun, while helicopter crews will begin next week, with 80 per cent of bait dropping expected to take place from the air. National Fire Ant Eradication Program (NFAEP) head of operations Graeme Dudgeon said poor weather had

so far restricted helicopter access. "We can't bait in wet weather because the bait is affected, so still a little bit more time before we start," he said.

This spring's double brood of cicadas may bring another unwanted force – urine

This year is set to make history as more than a trillion cicadas are about to descend on the US for the first time since 1803. However, a new study has revealed that the insects could urinate on humans when they surface this spring. Two different broods of cicadas – one that emerges every 13 years and another with a 17-year cycle – will emerge from the soil to mate for the first time in 221 years. Trillions of the noisy bugs are set to pop out of the ground starting around late May 2024. According to a recent report, published in the Proceedings of the National Academy of Sciences, cicadas will also eliminate waste in the form of urine when they emerge. In fact, scientists revealed that the insects are one of the smallest organisms capable of producing such high-speed excretory jet streams.

Photo captures 'horrifying' moment spider devours snake

In what can only be described as "the most Australian thing ever", a giant spider has been caught on camera devouring a snake stuck in its web in Far North Queensland. Mitch Blake, who runs the tourist park in Millaa Millaa, told Yahoo News Australia that a tourist made the discovery in one of the gardens. "I had an American guy staying here that came into the office one morning who said, 'I just saw the most Australian thing ever', and told me where it was. I sort of went expecting it to be a gecko, not a snake, but yeah, it looked like a Golden Orb Weaving spider had caught a baby green tree snake that night and already had a bit of a snack near his tail."

Hairy poo unmasked as nation's newest creepy-crawly

A Queensland camper has made a momentous scientific discovery after taking a closer look at a hairy poo. Entomologist James Tweed was chilling out in the lush rainforest that sits behind the Gold Coast's busy beaches a while back. As he wandered off to clean his teeth, his gaze fell upon what he thought was a blob of bird poo, turning furry with mould in the humidity. But it turned out to be Australia's newest creepy-crawly - a longhorn beetle so distinct from its relatives that it's not just a new species, but a whole new genus.

Warning over 'destructive' bugs found in Aussie backyard

A swarm of eye-catching bugs huddled together on a backyard tree caught the attention of a resident who said she's "watched them grow" in numbers over the past few weeks.
But as beautiful as they may seem with their bright orange and blue hues, they're "extremely destructive" in large numbers, some have warned. The insects appear to be harlequin bugs, part of the jewel bug family named for their bright metallic colouration.
"The colour is associated with a warning," Australian Museum Entomologist Dr Chris Reid told Yahoo News Australia. The harlequin bugs on display in the woman's Queensland garden appear to be female which are mostly orange in colour, while males are usually mostly blue and red. The colourful insects are pretty common along the east coast of Australia, and while harmless to humans, can wreak havoc on gardens across the country. "They have a proboscis (elongated sucking mouthpart) that they use to pierce plants and suck the life out of them and their flowers," an amateur entomologist shared on social media where the photos were posted last week.

How do flies mate?

The answer is not quite as straightforward as you might think. Read on to find out about the surprising behaviours and role reversals that redefine the norms of nature when it comes to flies and their mating rituals. In most flies, including the housefly, which buzzes around beneath light-fittings worldwide, the male mounts the female from behind. Another familiar group, the crane flies, tend to face in opposite directions, joined only by the tips of their elongated abdomens. A simple way to witness first-hand the love lives of flies is to get comfy beside a fresh cowpat in summer and watch the sexual antics of the resident yellow dung flies – a source of fascination for zoologists.

Insect the size of a small dog bewilders Aussie: 'Holy s**t'

Australia is known for its wildlife but it's not every day you find your dog standing next to a giant, green insect almost the same size. Jack Riddle was in the shower at his Brisbane home when he heard his dog Harlow "barking like crazy" outside. Fearing what it could be, Jack ran out into the garden to find his pug looking at something large on the garden shed. "Holy f**king s**t," Jack exclaimed as he walked towards the giant bug. "What the f**k?" After sharing the video of the creature online, hundreds responded saying they could not believe what they were seeing. "Your reaction is totally valid, what the hell is that?" one person asked. "When its wings came out I was getting Jurassic Park vibes," another added.

Scientific body given just $100,000 a year to fight deadly fire ants, Senate inquiry told

Australia's leading scientific research body received just $100,000 a year towards combatting fire ants, a Senate inquiry into the highly invasive pests has heard. At the third and final session of public hearings for the Senate inquiry on Monday, the committee's chair, Senator Matt Canavan, said some of the evidence he had heard had "freaked [him] out". Red imported fire ants (RIFA) are believed to have entered Australia in the 1990s and were discovered at Brisbane port in 2001. A program spanning state, territory and federal governments was created to eradicate Rifa and has been allocated more than $1.2bn of federal and state funding. Of that, $593m covers 2023 to 2027. But the CSIRO's executive director of future industries, Kirsten Rose, said the agency has only received about $1m – most of it government funded – towards combatting fire ants over the last 10 years, despite pioneering research in RIFA management including the development of a Rifa-specific novel genetic bait and drone surveillance technology.

Growing creeping boobialla to secure Victoria's endangered golden-rayed blue butterfly

It's a match made in salt marsh heaven. The endangered golden-rayed blue butterfly is found exclusively in the Wimmera, and only has eyes for one attractive creeper plant, which plays chef and nanny to its young. "It has really lush, small green leaves and then over summer, for the whole of summer it's covered in little white star-shaped flowers," said Jessie Sinclair, invertebrate conservation coordinator at Zoos Victoria. he butterfly spends its entire life cycle among the leaves of the creeping boobialla, a perennial shrub that grows in the loamy sands of salt lakes of western Victoria. "It will be hatched there, it will live there, it will feed there, populate there, mate there, and then lay its eggs and then die there," said Elizabeth Mace, operations manager at Dalki Garringa native nursery.

[Move Aside, Salt & Pepper – Edible Ants Could Be The Next Hot Seasoning]

Ants have long been a source of food across the globe, and each species has its own unique flavor. Researchers have analyzed these edible ants to get an idea of where their delectable tastes and smells come from, highlighting the untapped potential for their use in culinary settings in countries that have historically been reticent to put insects on the menu. Need an acidic, vinegary twist? Black ants have you covered, packed full of formic acid, which is a compound they secrete from venom glands. This could enable chefs to swap our vinegar and lemon juice, and could be a more sustainable source of the flavor profile. Want to get the meaty, fatty aroma of burgers and sausages on the grill? Chicatana ants can do that thanks to aldehydes and pyrazine in their little segmented bodies, which match those produced when meats and bread are cooked. This could plus up meat alternatives by replicating the flavors of real meat, which as we know, is an expensive industry for the planet when it comes to emissions, water use, and climate change.

[Jet-Powered Cicada Urination Redefines the Rules of Fluid Dynamics]

While most small insects and mammals urinate in droplets, cicadas urinate in jets. Georgia Tech researchers say the finding could be used to create better robots and small nozzles. Cicadas are the soundtrack of summer, but their pee is more special than their music. Rather than sprinkling droplets, they emit jets of urine from their small frames. For years, Georgia Tech researchers have wanted to understand the cicada's unique urination. Saad Bhamla, an assistant professor in the School of Chemical and Biochemical Engineering, and his research group hoped for an opportunity to study a cicada's fluid excretion. owever, while cicadas are easily heard, they hide in trees, making them hard to observe. As such, seeing a cicada pee is an event. Bhamla's team had only watched the process on YouTube. Then, while doing fieldwork in Peru, the team got lucky: They saw numerous cicadas in a tree, peeing.

[Legless lizards, mouthless moths and wingless flies: Meet the minimalists of the animal world]

What do you call a fly without wings? Depending on your repertoire of dad jokes, you might answer "a walk". Ask an entomologist, though, and you might get a less hilarious but more accurate response: a female soldier fly (*Boreoides subulatus*). So why would a fly, which evolved wings to deftly zip through the air, lose them again? According to entomologist Bryan Lessard — better known as Bry the Fly Guy — these femme flies simply grow too chunky to get airborne. Her rotund body, which dwarfs her relatively puny head, is an egg-producing machine. "Over the last millions of years, she's decided, 'You know what? To heck with wings. I don't need them anymore. They no longer bring me joy. I'm going to get rid of them,'" Dr Lessard tells RN's What the Duck?! "And she actually just crawls around on tree trunks and on branches and … waits for the males to come, because the males have wings. "Then they have a little dance off and make sexy times and fertilise her eggs." She's one example of how natural selection pares away superfluous traits. Here are a few other creatures that have relegated seemingly crucial appendages to the evolutionary wastebasket. And the soldier fly's not the only wingless wonder of its kind …

‘Incredibly rare’ discovery reveals bedbugs came to Britain with the Romans

From plumbing to public baths, the Romans left their mark on Britain’s health. But it may not have all been positive. Archaeologists working at Vindolanda, a Roman garrison site south of Hadrian’s Wall in Northumberland, have unearthed fresh evidence that the Romans also brought us ... bedbugs. Dr Andrew Birley, who heads the Vindolanda archaeological team, said: “It is incredibly rare to find them in any ancient context.” The discovery was made by Katie Wyse Jackson 24, a University College Dublin (UCD) student working on the excavated material as part of her research masters in archaeoentomology, the study of insects at archaeological sites. Focusing on one of Vindolanda’s lowest layers, which dates to around AD100, she recovered two thoraces believed to have come from the common bedbug known by its Latin name, *Cimex lectularius*. With needle-like mouthparts, they pierce the skin of humans to suck their blood. “Finding this kind of thing helps humanise the people of the past,” said Wyse Jackson. Noting that Pliny, the Roman philosopher, wrote of the medicinal value of bedbugs in the treatment of certain ailments, such as ear infections, she added: “People then had all sorts of notions of what insects could do.”

The Global Impact of Coptotermes and The Rise of CSI Bait Formulations as a Solution

Subterranean termites present particularly difficult challenges for the pest control industry around the world owing to their ability to forage long distances underground and also to their capacity to establish large colonies with high destructive potential. A handful of subterranean termite genera represent the bulk of the estimated US$40B annual cost of termites worldwide (Rust and Su, 2012), and among them, species within the *Coptotermes-Reticulitermes-Heterotermes* complex are the primary actors responsible for structural damage (Chouvenc et al., 2021), among a few other notable termite pest genera. Termite pest control research over the past seven decades reflects the major pest status of these three termite genera, as more than 80% of the extensive scientific literature published on subterranean termites focused on them. Also, without neglecting many other important termite pests, it can be argued that many species within *Coptotermes* are among the most problematic and most difficult termite pests to control.

Are daddy-long-legs really the most venomous spider? Here's the truth behind the myths

Daddy-long-leg spiders are in homes throughout the world – but there's so much about them that is misunderstood. For a start, they're not all actual daddies, says Samantha Nixon, a research scientist from the University of California, San Francisco (UCSF).
Dr Nixon is originally from Queensland and credits the daddy-long-legs for helping her switch from an arachnophobe to a spider-loving venom scientist. She's going to help us clear up a few myths and misnomers about the daddy-long-legs. You might have heard the claim that daddy-long-legs are really dangerous, but they just don't have big enough fangs to bite us. There are a few versions of this story, but according to the experts it just isn't true.

Fossil of a 'Giant' Trapdoor Spider

Even millions of years ago, Australia was a paradise for spiders. In the arid heart of the continent, scientists have found an exquisitely preserved fossil of a fascinatingly large spider that roamed and hunted in what was once a lush rainforest. It's not just any fossilized spider, either. It's only the fourth spider fossil ever to be found in Australia, and the first, worldwide, of a spider belonging to the large brush-footed trapdoor spider family, Barychelidae. The new species, which lived in the Miocene 11 to 16 million years ago, has been officially named *Megamonodontium mccluskyi* .

Getting rid of bed bugs is trickier than ever

The stories have become horribly familiar. Houses so overrun by bed bugs that the bloodsucking insects pile an inch deep on the floor. An airport shutting down gates for deep cleaning after the parasites were spotted brazenly crawling around. Fear and loathing during Fashion Week 2023 in Paris, with bed bug detection dogs working overtime when the insects turned up in movie theaters and trains. For reasons that almost certainly have to do with global travel and poor pest management, bed bugs have resurfaced with a vengeance in 50 countries since the late 1990s. But recently, the resurgence has brought an added twist. When exterminators swarm out to hunt these pests, they might encounter not just one but two different kinds of bugs. Besides the common bed bug, *Cimex lectularius*, which has always made its home in the Northern Hemisphere, there are now sightings of its cousin, the tropical bed bug, *Cimex hemipterus*, in temperate regions. Traditionally, this species didn't venture that far from the equator, write entomologists Stephen Doggett and Chow-Yang Lee in the 2023 issue of the *Annual Review of Entomology*. But in recent years, tropical bed bugs have turned up in the United States, Sweden, Italy, Norway, Finland, China, Japan, France, Central Europe, Spain — "even in Russia, which would have once been unthinkable," says Lee, of the University of California, Riverside.

Where Are Fire Ants Found in Australia and New Zealand?

With the red imported fire ant incursion in southeast Queensland expanding into northern NSW, we've pulled his information page together to provide the latest information on where fire ants are found in Australia and New Zealand. When most people talk about fire ants, they are referring to the red important fire ant (*Solenopsis invicta*), yet there are two other species of invasive fire ant – the tropical fire ant or ginger ant (*Solenopsis geminata*) and the electric ant or little fire ant or (*Wasmannia auropunctata*), both of which have also invaded Australia. Although some states and regions declare themselves "fire ant free", it is also true that there are many semi-rural and uninhabited areas in which fire ants could thrive for a significant amount of time before being detected. As such, is it important for pest managers and the general public to be aware of where fire ants are currently found and what fire ants look like, so potential new incursions can be spotted. Although a map is commonly used to show that greater than 99% of the mainland states of Australia are vulnerable to fire ant infestation, it is important to remember fire ants are a tropical and sub-tropical species, requiring warmer temperatures and annual rainfall to thrive. Areas with less than 510 mm annual rainfall a year, or with minimum temperatures below 3.6^{o}C or maximum temperatures about 40^{o}C for any length of time, are not likely to be favourable for red imported fire ant survival. Although this may eliminate the drier, colder and hotter parts of Australia, it does still mean a significant portion of Australia is vulnerable to fire ant invasion, particularly the tropical north, coastal areas around the country and some key agricultural areas, which means fire ants could have a significant impact on our way of life and economy.

Monarch butterfly migration: its remarkable 3,000 mile journey explored

When contemplating epic animal migrations, the first journeys that spring to mind will invariably be the massed movement of wildebeest across the African plains, the globetrotting adventures of Arctic terns, or the oceanic odysseys of gray whales. But let's not forget the annual cycle of the monarch butterfly, which is surely as impressive as anything an antelope, bird or whale can muster. In possession of two pairs of brilliant, large orange-red wings, etched with black veins and decorated with white spots along dark

margins, the monarch recognised and best-loved of all North American butterflies. Rarely lasting for longer than a month on the wing, the monarchs nonetheless provide an important service pollinating countless wildflowers over the summer. However, with the arrival of autumn, a special 'Methuselah generation' of monarch butterflies, which can live eight times longer than their predecessors, emerges from summer breeding grounds across Canada and northeastern USA. Forced south by decreasing day length, lower temperatures and fewer nectar sources, the final winter destination for these butterflies consists of just a few hectares of high- altitude forest in south-west Mexico, up to 4,800km away from where they started life as an egg.

Stunning new species of moth with whip-like defensive mechanism discovered in Brazil
Resembling the bright markings of the European puss moth, the new species – Americerura brasiliensis – was found in south-east Brazil. Many members of the prominent moth family have remarkable caterpillars, and this new species is no exception. Resembling a boldly marked European puss moth, its hindmost legs have been remodelled as a pair of defensive organs called stemapods, which each extrude a red, whip-like filament to deter predators. It was found in south-east Brasil, where, like the puss moth, it feeds on plants from the willow family. It belongs to a genus of American species whose closest relatives occur in Africa, which suggests its ancestors managed to cross the Atlantic.

Surprise reason 'huge' mosquitoes terrifying Aussies are not to fear
Parts of the country have been in the grips of a "war" with mosquitoes following humid, wet weather but locals are beginning to question "what on earth" is going on with these unwanted insects as some appear to be larger than normal. Areas in Queensland have been experiencing swarms of mosquitoes so much so that the City of Gold Coast recently announced they are pledging an additional $1 million to "tackle the escalating issue", while Brisbane City Council told Yahoo News Australia they have an "unlimited budget" to do the same. Among the influx of mosquitoes flying around are "huge" ones terrifying locals. But experts reveal these are not the ones to fear.

How to minimise mosquitoes in your backyard and home
Prolonged hot, humid weather has created perfect breeding conditions for mosquitoes this summer. Mosquitoes are usually most prevalent from about December until April and Dr Prasad Paradkar from CSIRO's Australian Centre for Disease Preparedness says mosquito season started early. "Then after the rains we have had in the past month or so in various parts of the country, and with the hotter climate, there are more mosquitoes now and it seems like there will be a big season this year," he says. The reason this is a cause for concern is it raises the risk of outbreaks of mosquito-borne diseases such as Ross River virus, Dengue fever and Japanese encephalitis. Dr Paradkar says only a small proportion of the 300 plus species found in Australia bite humans and "about five to 10 species out of those actually carry a virus or pathogen which can translate to humans and cause a disease".
So, what steps can you take around your home and garden to reduce mosquito numbers?

Insecticide Resistance in Ants and Termites

Insecticide resistance is often one of the first things mentioned when a pest control treatment doesn't work. It is certainly a possibility with bed bug treatments and maybe with German cockroach treatments, but is insecticide resistance really a reason for treatment failure when dealing with ants and termites? A recent review paper from leading researchers in the US had a closer look at the possibility.[1]

Unlocking the Secret Pheromone Aphrodisiac of Moths

Male moths use a blend of pheromones, including the newly discovered aphrodisiac methyl salicylate, to attract mates, a strategy that underscores the complexity of insect communication and mating behaviors. North Carolina State University researchers have identified the specific blend of pheromone chemicals – including a newly revealed aphrodisiac – used by male moths during courtship as they attempt to entice females to mate. The findings provide more detail about the complex blend of chemicals used in fundamental short-range communication between male and female moths after their initial characterization nearly 35 years ago. The aphrodisiac, a chemical called methyl salicylate, is derived from plants. When attacked by herbivores, plants emit methyl salicylate both as a healing mechanism and as a cry for help to enemies of these herbivores. Its use in a pheromone blend by male *Chloridea virescens* moths could be viewed as a "macho" display showing that the male was able to defeat both the plant's defenses and its call to the moth's enemies, making it a more worthy mating option.

Ross River Virus: Thousands of Queenslanders at risk as mosquito numbers soar

The population of mosquitoes has exploded in one state with thousands of Aussies set to be infected with a horror virus as a result. Mosquito numbers in Queensland are the worst they've been in ten years, thanks to wet weather. The number of mosquitoes carrying the Ross River Virus is thought to have surged, sparking fears that thousands of Queenslanders are set to be infected in weeks. The virus causes fever, swollen and painful joints and a rash. There is no vaccine. While most people recover in a matter of weeks, some experience pain and fatigue for months. Thousands of Queenslanders are expected to be infected with The last time mosquito numbers were this bad was in 2019/20 when more than 3,000 people were infected with the virus, the ABC reports. Of the 700 insects tested in recent weeks across the state, 31 returned positive results for Ross River Virus. Areas believed to be most at risk include Brisbane, Bundaberg, the Banana Shire, Gold Coast, Fraser Coast, Livingston Shire Mackay, Moreton Bay, Sunshine Coast and Wide Bay.

Extra half-a-billion-dollars being spent in attempt to eradicate red imported fire ant

The Commonwealth and state governments are doubling down on a half-billion-dollar program that's so far failed to stop the spread of a pest that's a threat to life and Australia's outdoor lifestyle. Almost 23 years after an infestation of the red imported fire ant began at the Port of Brisbane, the ants have spread throughout the city and into the Gold Coast, where the local council says the ants are a threat to "one of the best lifestyles globally". "Such infestations would interrupt and reduce peoples' willingness to participate in outdoor work and leisure activities, impacting on this lifestyle," Gold Coast mayor Tom Tate said in a submission to a Senate inquiry. The ants — which are native to South America — have also been found in northern New South Wales, in Murwillumbah and Wardell. These are isolated outbreaks most likely spread via infested topsoil moved from south-east Queensland.

Unraveling the Mystery of Insects Circling Lights at Night

Recent research utilizing high-speed tracking has explored the longstanding mystery of why insects are drawn to and circle around light sources at night. The study debunks previous theories, such as attraction to heat or mistaking artificial lights for celestial navigation cues, and introduces the dorsal light response as a key factor. It's an observation as old as humans gathering around campfires: Light at night can draw an erratically circling crowd of insects. In art, music, and literature, this spectacle is an enduring metaphor for dangerous but irresistible attractions. And watching their frenetic movements really gives the sense that something is wrong – that instead of finding food and evading predators, these nocturnal pilots are trapped by a light.

You might "smell good" to the world's deadliest animal, and researchers are about to find out why

Mosquitos drink our blood to grow their eggs, but exactly how they select where their meals come from isn't fully understood. Now, Murdoch University's Dr Wei Xu and Dr Penghao Wang have been awarded a half-a-million-dollar grant from the Australian Research Council to find out exactly why some people appeal more to the insects than others. The results of the collaborative project between Murdoch University, Queensland Institute of Medical Research and University of California, Davis, will help us better manage the transmission of diseases and develop sustainable ways to keep mosquitos at bay. "Given how pervasive mosquitos are, very little work has been done to understand how and why they choose the humans and animals they feed on," Dr Xu said.

Australia's **shot-hole** borer beetle invasion has begun, but we don't need to chop down every tree under attack

A new pest attacking Perth's trees threatens to spread across Australia, damaging crops and native forests as well as our urban forest. To control its spread, the Western Australian government is chopping down hundreds of established trees. But these losses may be in vain. Originally from southeast Asia, the polyphagous (meaning "many-eating") shot-hole borer has invaded several countries. It attacks more than 400 tree species, including crops such as apple, avocado, macadamia and mango. Trees grown for timber, such as ash, elms and oaks are not safe either. And with every new country it invades, it threatens an increasingly large number of native trees. Australia plans to eradicate this pest using one method: felling established trees. But the borer has been eradicated only once – in isolated tropical glasshouses in frosty Europe – demonstrating the difficulty of eradication from larger agricultural and natural ecosystems. To achieve this worthy but difficult goal, everyone will need to work together. We need a wide range of experts to fully evaluate all available control methods, and consider the most appropriate time frame for eradication. Understanding the impacts of both the pest and its management will ensure we get the best possible outcomes in both the short and long term.

Answers to the Women in Entomology quiz.

1. Marks, Exley, Hales, Jones, Gullan

2. Anderson

3. Daly

4. There are probably quite a few. If you aren't sure of your answers, look them up. If you put Hales, thank you but wrong.

5. Merion

6. Dietrich

7. Mackerras

8. Patch (aphids)

9. Rothschild

10. Stone

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