



Ento23

5 – 7 September 2023

PROGRAMME

Annual conference

UNIVERSITY OF EXETER, PENRYN CAMPUS, CORNWALL



Royal
Entomological
Society



University
of Exeter

Photo credit: 'Sleeping Beauty' by Gustav Parenmark

Penryn Campus



50 metres



- 1 ESI Environment and Sustainability Institute
- 2 REEF Renewable Energy Engineering Facility
- 3 SERSF Science & Engineering Research Support Facility
- 4 Games Academy
- 5 Stella Turk Building
- 6 AIR Academy for Innovation & Research
- 7 Fashion & Textiles Institute
- 8 The Creative Bridge
- 9 Launchpad
- 10 School of Entrepreneurship
- 11 Daphne du Maurier Building
- 12 The Exchange - Library IT & Career Zone
- 13 Tremough House
- 14 Academy of Music and Theatre Arts
- 15 School of Film & Television
- 16 Institute of Photography
- 17 Games Academy
- 18 Peter Lanyon Building
- Future development

- Car Parking
- Restricted Parking
- Accessible Parking
- Motorcycle Parking
- Parking Pay Station
- Cycle Racks
- EV Charging Point
- Information
- The Compass
- Defibrillator
- First Aid
- Residences
- Toilets
- Serves Food & Drinks
- Cash Machine
- Penryn Train Station
- Pedestrian Routes
- Student Services
- Student Health Centre
- Multifaith Chaplaincy
- Post Room
- The Falmouth & Exeter Students' Union
- Bus Stops



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falmouth.ac.uk
exeter.ac.uk

FALMOUTH
UNIVERSITY

UNIVERSITY OF
EXETER



Discover...

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The next Insect Week is 24 – 30 June 2024, which aims to engage the public with the wonder and importance of insects, through events, activities, resources and competitions.

We are looking for partners and collaborators to make Insect Week even bigger! If you are interested in being involved, please contact Fran Sconce: fran@royensoc.co.uk

Welcome from the president

On behalf of the Royal Entomological Society (RES), I am delighted to welcome you to our 2023 annual conference, Ento23. Whether you are joining in Cornwall at the University of Exeter's Penryn Campus or online, we have a packed few days to share research and ideas, develop skills, meet colleagues and build new connections. With over 200 delegates joining from around the world, this is one of the largest Ento conferences we have held, providing a growing platform for entomologists working in both academia and industry.

The programme focuses on *Grand Challenges in Entomology*, which run through our themed sessions, led by internationally renowned keynote speakers. In addition to talk and poster presentations, the programme offers a number of workshops, which provide an opportunity to network and develop new skills in a more interactive way. There are also plenty of social events to meet new colleagues and have some fun!

The RES vision is to *enrich the world with insect science*. Alongside events like this and those run by our Special Interest Groups, we publish seven scientific journals, a range of books and a handbook series for the identification of insects. Our popular Antenna magazine is available to members, as are our Library and Archives, which have existed since the founding of the Society in 1833. We are increasing public understanding of entomology through outreach activities and policy work. Head to the RES stands in the Exhibition Hall to talk to the staff team and find out more. If you're not already a member, I encourage you to join to be part of our growing entomological community.

Finally, if you are a member, please consider helping shape the future of our Society by attending our AGM from 13:15 – 14:15 on Tuesday 5 September. You will hear about key Society updates and new Council members will be elected.

I hope everyone uses Ento23 to catch up with friends and colleagues, and to establish new collaborations. I look forward to talking to as many of you as possible and wish you a productive and enjoyable conference.



J Hill

Professor Jane Hill OBE Hon. FRES,
President, The Royal Entomological Society



**Royal
Entomological
Society**



Welcome from Ento23 local convenors

We are delighted be hosting Ento23 at the Centre for Ecology and Conservation (CEC) on the University of Exeter's Penryn campus in Cornwall. The research in the CEC strives to understand ecology, evolution and solutions to the global biodiversity crisis. It has over 70 principal investigators whose research focuses on evolutionary biology, behavioural ecology, ecology and conservation biology. There are many groups working on insects within the department, spanning work on butterflies and moths, wasps and bees, beetles, hoverflies, aphids, crickets, mosquitoes and fruit flies. We have built on the research strengths here in Cornwall to put together a diverse programme covering a broad range of fundamental and applied topics in entomology, that have broader implications for other taxa and society more generally. We look forward to welcoming you to Penryn for what promises to be a fun and exciting conference.



Ben Raymond

Ben Raymond is a Professor of Ecology and Evolution who works with insects, plants, bacterial pathogens and symbionts. His research focuses on virulence and resistance, particularly the evolution of virulence in parasites and symbionts, the evolution of resistance to the biological control agent *Bacillus thuringiensis* and, increasingly, the evolution of resistance to antibiotics.



Jason Chapman

Jason Chapman is an Associate Professor of Movement Ecology. He is interested in the evolution of animal migration strategies, and the population and community-level effects of these long-range movements. He studies insects and birds to answer these questions, and uses novel technologies including biological radars, weather radars, meteorological simulations, tethered flight techniques and genomic approaches to characterize their migration ecology.



Ben Longdon

Ben Longdon is a Wellcome Trust and Royal Society Research Fellow and Associate Professor in Host-Pathogen Evolutionary Ecology. Research in his lab focuses on several areas related to host-parasite evolution and ecology, using insects and their natural viral pathogens as a model system. A major part of his research is understanding how and why susceptibility varies across host species, and how pathogens jump into novel hosts.



Programme overview

Tuesday 05		Wednesday 06		Thursday 07	
07:00		07:00 – 07:30 Conference Run			
08:00	08:00 – 17:00 Registration Open	07:30 – 08:00 Moth Traps 08:00 – 09:00 Grand Challenges Workshop	07:30 – 08:00 Moth Traps 08:00 – 09:00 Women in Entomology		
09:00	09:00 – 10:15 Opening Ceremony and Plenary: Jaap De Roode	09:15 – 10:15 Plenary: Elii Leadbeater	09:15 – 11:15 Conservation and Declines	09:15 – 11:15 Behavioural and Evolutionary Ecology	
10:00	10:15 – 10:45 Refreshment Break & Meet the Speaker	10:15 – 10:45 Refreshment Break & Meet the speaker			
11:00	10:45 – 12:45 Movement and Migration	10:45 – 12:45 Symbionts and Microbes			
12:00					11:45 – 13:00 Plenary: Vanessa Kellermann & Close
13:00	12:45 – 14:30 Lunch 13:15 – 14:15 AGM	12:45 – 14:30 Lunch 13:15 – 14:15 Workshops			
14:00	14:30 – 16:00 Pests, Biological Control and IPM I	14:30 – 16:00 Pollinators I	14:30 – 16:00 Infection and Immunity I		
15:00	16:00 – 16:30 Refreshment Break	16:00 – 16:30 Refreshment Break & LGBTQI+ Meet-up			
16:00	16:30 – 18:00 Pests, Biological Control and IPM II	16:30 – 18:00 Pollinators II	16:30 – 18:00 Infection and Immunity II		
17:00					
18:00	18:00 – 19:30 President's Reception & Poster Session	18:00 – 19:00 Poster Session & Pitch a Paper			
19:00					
20:00	19:30 – 22:30 EntOlympics & Custom House Quay	19:30 – 00:00 Conference Dinner			
21:00					



Grand Challenges in Entomology



Grand Challenges in Entomology is an ongoing project of the Royal Entomological Society to develop an agenda for the future of global entomology and the Society. It is inspired by the Entomological Society of America's Grand Challenge Agenda for Entomology initiative.

After a membership consultation and expert workshop, eleven themes were determined to group scientific priorities in insect science, listed below. This prioritisation exercise was led by Lynn Dicks at the University of Cambridge, to focus the Society's global membership on the future of the entomological sector.

Fundamental Research	Anthropogenic Impacts & Conservation	Uses, Ecosystem Services & Disservices	Collaboration, Engagement & Training
Taxonomy	Anthropogenic Impacts	Ecosystem Benefits	Knowledge Access
Blue Skies	Conservation Options	Technology and Resources	Training and Collaboration
Methods and Techniques		Pests	Society Engagement

We have ensured that these Grand Challenges have been reflected throughout the Ento23 programme and on Wednesday morning we will be running a workshop to consider the next steps to support insect science and empower entomologists around the world (see page 09).

In March this year this study was published in the RES journal, *Insect Conservation and Diversity*. Scan the code below to read the full paper.



<https://shorturl.at/uJPQU>



Plenary speakers

We are delighted to welcome three internationally renowned entomologists to provide a plenary talk on each day of the conference.



Jacobus 'Jaap' De Roode

Emory University, USA
Tuesday 5 September,
09:15 – 10:15
Lecture Theatre A

Jaap de Roode obtained an MSc degree in population biology from the Wageningen University in the Netherlands and a PhD in evolutionary biology from the University of Edinburgh in Scotland.

He started his lab at Emory University in 2008, where most of his research focuses on the ecology and evolution of host-parasite interactions. He uses monarch butterflies and honey bees as model systems. He is currently investigating how secondary chemicals in plants drive monarch butterfly gut microbiomes and resistance to parasites and is also studying the relationships between infectious disease and monarch butterfly migration.

He is Director of the Infectious Disease Across Scales Training Program (IDASTP), Co-Director of The MP3 Initiative 'From Molecules and Pathogens to Populations and Pandemics' and Board of Directors, Rosalynn Carter Butterfly Trail.

Talk title: **Migration, microbes and medication in the monarch butterfly.**

foraging context and that their stimulus choice is determined by what they learn from co-specifics. She then extended her analyses to copying and robbing behaviour, and later, focused on how selection shapes animal brains to promote social learning and on the role of cooperation between unrelated nest-mates for colony success.

Her more recent work has addressed the question of how urban environments affect pollinator activities and survival, and how pesticides and other forms of environmental stress affect pollinators.

Talk title: **Does (collective) cognition produce efficiently foraging bees?**



Vanessa Kellermann

La Trobe University, Australia
Thursday 7 September,
11:45 – 12:45
Lecture Theatre A

Vanessa's research uses *Drosophila* and native bees to understand the role of climate and biotic interactions in shaping insect distributions.

She is interested in the relative contributions of genetic adaptation and phenotypic plasticity to the evolution of thermal and drought tolerance.

She uses quantitative genetic approaches, experimental evolution and species-level macro-ecological studies to answer these questions.

After receiving her doctorate from The University of Melbourne, Vanessa then moved to the laboratory of Volker Loeschcke at Aarhus University Denmark, where she spent two years as a postdoctorate. Returning to Australia, she started her laboratory group in 2020 and started a new position at La Trobe University this year.

Talk title: **Adaptation in a warming world: insights from *Drosophila* and bees.**



Elli Leadbeater

Royal Holloway University of London
Wednesday 6 September,
09:15 – 10:15
Lecture Theatre A

Elli Leadbeater's research interests centre around the evolution of social behaviour and cognition. Her insights into pollinator behaviour have direct relevance to the challenge of ensuring pollination success in both natural populations and in agriculture.

Elli's early research showed that bumblebees are capable of observational learning in a



Workshops

In the morning we will lead a session on the Grand Challenges in Entomology, and on Wednesday afternoon there will be three workshops running in parallel to choose from. Pre-booking is not required, simply turn up at the workshop you would like to take part in.

All workshops take place on Wednesday 6 September.

AM

Grand Challenges in Entomology

Wednesday 6 September, 08:00 – 09:00
Lecture Theatre B

Organisers: Simon Ward (RES Chief Executive Officer) and Luke Tilley (RES Director of Communications & Engagement)

Would you like to help the RES address the Grand Challenges in Entomology? The Society is planning the next steps to support insect science and empower entomologists around the world. Join the staff team to learn more about the initiative and contribute your ideas.

See page 07 for more information.

PM

Community-sourced Strategies for Improving Insect Welfare in Research and Education

Wednesday 6 September, 13:15 – 14:15
Seminar Room D

Organisers: Bob Fischer (Texas State University) and Meghan Barrett (California State University Dominguez Hills)

Many entomologists are interested in considering insect welfare in their research/ pedagogical practice but face a lack of practical guidance. This workshop features suggestions from a panel of entomologists and ethicists on the use of insects as research animals. The panel will be followed by facilitated, small group discussion to source feasible strategies from the Royal Entomological Society community on how to better protect and promote insect welfare in research settings and to identify key knowledge gaps for best practices.

PM

How to engage different groups with your research

Wednesday 6 September, 13:15 – 14:15
Seminar Room E

Organiser: Fran Sconce (RES Senior Outreach & Learning Officer)

Want to know more about how to target your story to engage with different groups? Come and hear about successful engagement projects from Seirian Sumner (UCL & RES Trustee), Sally Luker & Derek Green (Budding Nature CIC) and Fran Sconce (RES). Attendees will then take part in an activity to adapt your story to engage different ages, knowledge backgrounds, and accessibility needs.

PM

How to get published

Wednesday 6 September, 13:15 – 14:15
Lecture Theatre B

Organiser: Emilie Aimé (RES Head of Publishing)

Ever wondered how to choose the right journal for your work? Or what editors look for in papers they accept for publication? Join the RES Head of Publishing, Emilie Aimé and several expert journal editors from the RES journals for this interactive panel discussion to find out.



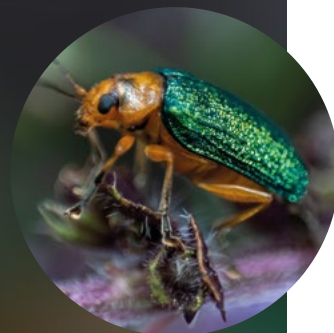
Networking and activities

TUESDAY 5 SEPTEMBER

Bug Bingo!

Attending one of your first larger conferences can be daunting. We've created Bug Bingo as a fun way to get involved in different activities and network throughout the conference.

Pick up your Bingo card on registration or at the RES stand. If you get 5 squares in a row, you've got a bingo, with prizes for the first 10. If you complete all squares, you get a full house with a special prize. Once you've completed a row head over to the RES stand. Good luck!



Opening ceremony

9:00 – 09:15

Lecture Theatre A

Join the RES President, RES Chief Executive Officer and conference local convenors as they welcome delegates to Ento23!

Meet the speaker: Jaap De Roode

10:15 – 10:45

Seminar Room D

Grab a coffee and cake and chat to Jaap De Roode. This is an opportunity for students and early career entomologists to ask our plenary speakers questions in a small, informal setting.

Royal Entomological Society's Annual General Meeting (AGM)

13:15 – 14:15

Lecture Theatre A

Help shape the future of our Society by attending the Royal Entomological Society's Annual General Meeting. Please note this is open to RES members and fellows only.

President's reception & poster session

18:00 – 19:30

Exhibition Hall

Share drinks and nibbles with old friends and new colleagues at the official welcome reception for delegates hosted by RES President, Jane Hill and with guest Martin Siebert, Deputy Vice Chancellor, of the University of Exeter.

From 18:30 presenters will be at their posters for the first poster session. We encourage delegates to view the posters, engage with presenters, and ask questions about their work.

EntOlympics

19:30 – 22:30

The Stannary Bar, Penryn Campus

We are delighted to welcome back EntOlympics – an entomology quiz and team-building competition for student and early career insect scientists. This is a pub quiz style activity, run by Liam Crowley and our student representatives, where teams compete using their entomological general knowledge and insect ID skills for a team prize.

Registration was required when you registered for Ento23, but you can still register to take part on the day, just check at the RES registration desk that spaces are still available. You will be assigned teams on the night. Good luck!



Informal mixer

19:30 – 22:30

Custom House Quay

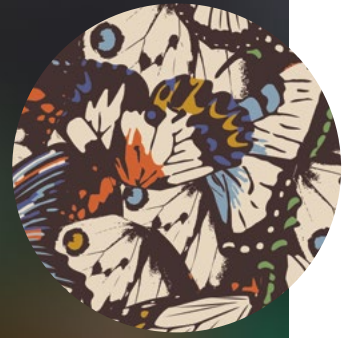
For those that aren't taking part in EntOlympics, our local convenors have recommended an evening at Custom House Quay in Falmouth, a short bus or train journey away. Weather permitting, head to the outdoor seating on the harbour side between the Front and Chain Locker pubs, there are lots of food places available.

WEDNESDAY 6 SEPTEMBER

EntoFashion day

On the second day of the conference, we encourage delegates to wear their entomology finest!

This could be anything from socks and patterned clothing to your own entomological creation. Our Student Representatives will be taking the time to photograph their favourites, with the top dressed winning a prize, announced at the evening's poster session. Feel free to share using **#EntoFashion**.



Conference fun run

07:00 – 07:30

Meeting point: The Campus Shop

Want to get your steps up ahead of another productive conference day? Join Karl Wotton who will lead a guided 6k run, with the option of 10k around the reservoirs. The 6k should get you back in time to get ready for the Grand Challenges workshop. Meet from 06:50 on the grass in front of the campus shop. Three words location: **///enlarge.bleaching.invisible**

Moth traps

07:30 – 08:00

Campus walled garden

Moth traps will be run overnight throughout the conference and delegates can then go through these on Wednesday and Thursday mornings from 07:30. The campus has a rich moth fauna including some local specialities, and at this time of year there is always a chance of seeing an unusual migrant, so come along to take a closer look! Everyone is welcome and no experience is required, the moths will be identified by our expert student helpers. Three words location: **///unstated.lonely.traps**

Grand Challenges workshop

08:00 – 09:00

Lecture Theatre B

See description on page 09. Make sure to grab a bite to eat before arriving. For those staying on the campus, breakfast starts at 7am.

Meet the speaker: Elli Leadbeater

10:15 – 10:45

Seminar Room D

Grab a coffee and cake and chat to Elli Leadbeater. This is an opportunity for students and early career entomologists to ask our plenary speakers questions in a small, informal setting.

Parallel workshops

13:15 – 14:15

Various locations

See description on page 09.



LGBTQI+ meet-up

16:00 – 16:30

Learning Lounge

Grab a coffee and cake and join us at our LGBTQI+ meet up where you can chat and network in a welcoming setting.

Poster session

18:00 – 19:00

Exhibition Hall

Enjoy a drink whilst viewing posters and engaging with presenters about their work.

Pitch a Paper

18:00 – 19:00

Exhibition Hall, RES Stand

Do you have a paper that you're looking to submit? Our journal editors will be on hand to give feedback. Bring along some of your key findings and be prepared to give a quick summary, time will be limited for each delegate.

Conference dinner

19:30 – midnight

Greenbank Hotel, Falmouth

Tickets for the conference dinner have now sold out. If you purchased a ticket in advance, join us at Greenbank Hotel to continue networking over dinner by the harbourside. Coaches will take delegates from the conference venue to Greenbank at 19:15. Listen for an announcement of where to meet. Your dinner ticket can be found in your name badge.

Coaches will return to campus accommodation at 23:00 and midnight.

THURSDAY 7 SEPTEMBER

Moth traps

07:30 – 08:00

Campus walled garden

A second chance to look through the moth traps. Everyone is welcome and no experience is required, the moths will be identified by our expert student helpers. Three words location: **///unstated.lonely.traps.**

Women in Entomology

08:00 – 09:00

Seminar Room E

An opportunity to network and celebrate women in entomology. Join our past and present female presidents and RES Trustees and Fellows at this informal mixer. All genders are welcome. Make sure to grab a bite to eat before arriving. For those staying on the campus, breakfast starts at 7am.

Meet the speaker: Vanessa Kellermann

11:15 – 11:45

Seminar Room D

Grab a coffee and cake and chat to Vanessa Kellermann. This is an opportunity for students and early career entomologists to ask our plenary speakers questions in a small, informal setting. Note on this occasion it will be before Vanessa's talk.

Upcoming events

25 – 26 September
Aquatic Insects SIG
Meeting & Workshop

27 September
Sustainable
Agriculture SIG:
From monitoring
to management

04 October
Online Talk Series:
Martin Kaltenpoth

01 November
Online Talk Series:
Una Fitzpatrick

08 November
Orthoptera
SIG Meeting



Exhibitors

We are pleased to welcome the following organisations as exhibitors at Ento23. We encourage you to take the time to engage with our partners who will be located in the Exhibition Hall throughout the conference.



**Royal
Entomological
Society**



CABI

Entocycle



Open Acoustic Devices



nhbs
wildlife | ecology | conservation

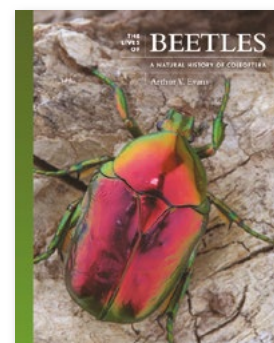
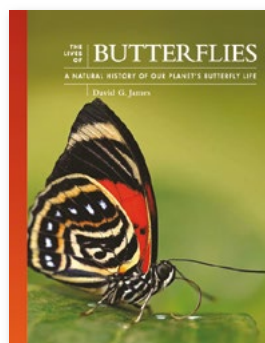
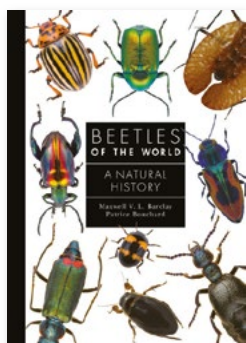
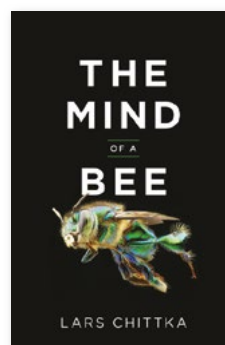
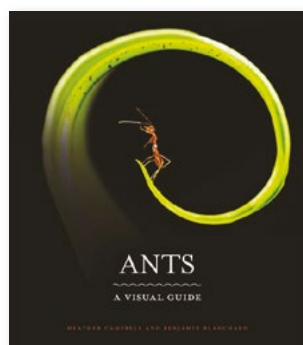
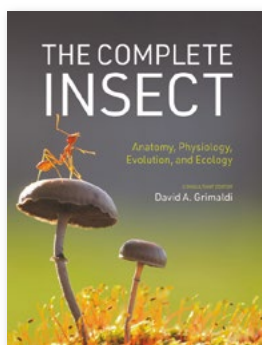
ZANTIKS

behaviour, simply



GT VISION

Princeton University Press *Entomology*



Enjoy the conference and treat yourself to some new books from Princeton Nature. Receive 30% off with code **EXH23** at press.princeton.edu/subjects/princeton-nature.



Presenter guidelines

Talks

All presentations must be uploaded in your session room at the venue. You cannot use your own laptop. Please upload your talk **at least 2 hours before the start of your session**, and attempt to upload your presentation the day before, particularly if you are speaking in a morning session. The session rooms will be open during the core hours of the conference, with an AV technician or helper on hand to add this to the PC desktop.

There are two main session rooms, Lecture Theatre A and Lecture Theatre B, please ensure you are clear which room you are speaking in.

Please arrive at your session 15 minutes before the start of the session to introduce yourself to the Chair and confirm how you would like to be welcomed to the stage.

Ensure you are clear how long your talk should be, leaving time for questions. The session Chair will keep you to time, signalling when you have 5 minutes and 1 minute of speaking time remaining.

Where there are microphones available, please ensure these are used so that everyone in the room and online can hear you.

Posters

All posters will be located in the main Exhibition Hall and arranged according to your poster number, found in this programme.

You can put your poster up anytime from 08:00 on Tuesday 05 September. We recommend having this in place for the first coffee break.

All posters must be dismounted from the boards by 13:30 on Thursday 07 September. Any remaining posters may be disposed of.

There will be multiple opportunities to stand at your poster and speak to delegates about your work.

- **President's Reception:**
Tuesday 05 September, 18:30 – 19:30
- **Poster Session:**
Wednesday 06 September, 18:00 – 19:00

Sharing content

We encourage delegates to share updates from the conference on social media using #Ento23, it's a great way to connect with other that are not attending and share important research.

However, not all research is ready to be publicised. If you see the **do not tweet** symbol on a slide or poster, please respect this and **do not** share this more widely.



If you have any questions about your presentation, please ask a member of RES staff at the Registration Desk or RES Stand.

New Scientist Live 2023

New
Scientist
Live



Would you like to share the importance of insect science with the general public and young people?

We are looking for volunteers for an interactive RES stand at New Scientist Live taking place at **ExCeL London** on **7 – 9 October 2023**.

To apply, please complete this short form by 8 September: <https://shorturl.at/dwzR3>



Oral presentations

Please note only the presenter's name and title of the presentation is listed in the printed programme. For a full list of authors and abstracts you can view the abstract book online via the Ento23 hub using the QR code.



royensoc.co.uk/
ento23-programme

Keynote talks are highlighted with **K**. All talks marked with **O** will be given online.

TUESDAY 5 SEPTEMBER

Movement and Migration

Lecture Theatre A

Chairs: Johanna Hedlund
and Jason Chapman

10:45

Insect migration and conservation. **K**

Shawan Chowdhury, German Centre for Integrative Biodiversity Research (iDiv)
Halle-Jena-Leipzig.

11:15

Sex differences in insect migration.

Toby Doyle, University of Exeter.

11:30

Mapping the potential Spatio-Temporal Distribution of Fall Armyworm in Europe.

Fanqi Gao, University of Exeter.

11:45

Genetic pathways involved in active insect migration.

Karl Wotton, University of Exeter.

12:00

Aerial diel insect flight periodicity patterns across Europe.

Birgen Haest, Swiss Ornithological Institute.

12:15

Migration in dragonflies and damselflies - a global overview.

Johanna Hedlund, University of Exeter and Lund University.

12:30

The most remarkable migrant - Assemblage and quantification of migratory insect species across European flyways.

Will Leo Hawkes, Swiss Ornithological Institute.



TUESDAY 5 SEPTEMBER

Pests, Biological Control and IPM I

Lecture Theatre A

Chairs: Dave Chandler,
Ben Raymond and
Michelle Fountain

- 14:30** **Optimizing IPM under climate change and upcoming low-input policies.** **K**
Johan Stenberg, Swedish University of Agricultural Sciences.
- 15:00** **Unravelling the effects of insecticides on insect health: Insights from high-resolution molecular approaches.**
Alicja Witwicka, Queen Mary University of London and University College London.
- 15:15** **Rebuilding blueberry IPM through advances in *Drosophila suzukii* control.**
Rufus Isaacs, Michigan State University.
- 15:30** ***Eretmoptera murphyi*, an iconic sub-Antarctic insect and now a successful invader and ecosystem engineer into the more extreme core Antarctic region.**
Peter Convey, British Antarctic Survey.
- 15:45** **Are we winning the tug-of-war with diamondback moth in tropical Asia?** **O**
Srinivasan Ramasamy, World Vegetable Center.

TUESDAY 5 SEPTEMBER

Genetics and Genomics I

Lecture Theatre B

Chairs: Bartek Troczka
and Angela Hayward

- 14:30** **Decoding the sap-sucking “mosquitos” of plants.** **K**
Tom Mathers, Wellcome Sanger Institute.
- 15:00** **Improvement of water quality for mass anopheline rearing: Dynamics of larval tray bacterial communities under different water treatments revealed by 16S ribosomal RNA ultra-sequencing.**
Nwamaka Akpodiete, University of Chester.
- 15:15** **Darwin Tree of Life: A Museum Perspective.**
Dominic Phillips, Natural History Museum, London (NHM).
- 15:30** ***Anopheles gambiae*, male vs female: single cell transcriptomic in the head of the malaria vector.**
Julien Devilliers, University of Leicester.
- 15:45** **Understanding and managing Barley Yellow Dwarf Virus.**
Louise McNamara, Teagasc.





TUESDAY 5 SEPTEMBER

Pests, Biological Control and IPM II

Lecture Theatre A

Chairs: Dave Chandler,
Ben Raymond and
Michelle Fountain

- 16:30** **Developing endophytes as biological solutions to manage BYDV & aphid vectors in spring barley.** 
Simranjit Kaur, Teagasc.
- 16:45** **Strategies for management of forest insects with semiochemicals.** 
Maria-Rosa Paiva, NOVA University of Lisbon.
- 17:00** **Cabbage stem flea beetle pest pressure in rapeseed fields is influenced by surrounding crop diversity, but can the surrounding landscape alter the insect microbiome?**
Daniel Leybourne, University of Liverpool.
- 17:15** **Fallen fruits: a back-up resource shaping fruit fly communities.**
Gwenaëlle Deconninck, Institut de Recherche sur la Biologie de l'Insecte (IRBI, CNRS).
- 17:30** **Spatial scale, predator behaviour, and pesticide sprays: Modelling interactions in IPM.**
John Banks, California State University.
- 17:45** **Optimised Surveillance Strategies for the early detection of the Emerald Ash Borer in the UK.**
Vasthi Alonso Chavez, Rothamsted Research.

TUESDAY 5 SEPTEMBER

Genetics and Genomics II

Lecture Theatre B

Chairs: Bartek Trocza
and Angela Hayward

- 16:30** **An unusual nicotinic acetylcholine receptor from the honey bee, *Apis mellifera*, which is sensitive to the biogenic amine, serotonin.**
Andrew Jones, Oxford Brookes University.
- 16:45** **Vitellogenin-Cas9 protein chimeras for targeted germline gene editing of aphids.**
Reuben James, John Innes Centre.
- 17:00** **Breeding resistance to cabbage stem flea beetle.**
Ryan Brock, John Innes Centre.
- 17:15** **Identification of insecticide resistance mechanisms and associated genes in *Aedes aegypti* from Angola.**
Henry Youd, Liverpool School of Tropical Medicine.
- 17:30** **The evolution of plant cultivation by ants – a case study using the genus *Philidris*.**
Laura Campbell, Durham University.
- 17:45** **The process and applications of sequencing the full genomes of the British and Irish arthropod fauna.**
Liam Crowley, University of Oxford.



WEDNESDAY 6 SEPTEMBER

Symbionts and Microbes

Lecture Theatre A

Chair: Ailsa McLean

- 10:45** Adding the microbial layers to a 30 year-long ecological monitoring project. **K** **O**
Anne Duplouy, University of Helsinki.
- 11:15** Interaction of the gut microbiota and immune response on host resistance to bacteria and fungal pathogens in *Galleria mellonella* larvae. **O**
Jennifer Kate, Upfold INRAE.
- 11:30** Managing antimicrobial resistance: How do burying beetles and microbes sustainably coexist in competition over shared resources?
Michael Jardine, University of Exeter.
- 11:45** Diet-dependent virulence effects of gut microbiota: The symbiosis of *Enterobacter cloacae* and *Plutella xylostella*.
Loretta Mugo, University of Tours and University of Exeter.
- 12:00** Harnessing near-chromosome level quality genomes to explore the evolution of termite immunity.
Cedric Aumont, Freie Universität Berlin.
- 12:15** Parasitism by endoparasitic wasps alters the microbiome and body odours of a caterpillar host, with consequences for higher trophic levels.
Gabriele Gloder, KU Leuven.
- 12:30** The population genomics of *Wolbachia* in *Aedes albopictus*.
Frank Jiggins, University of Cambridge.

WEDNESDAY 6 SEPTEMBER

Pollinators I

Lecture Theatre A

Chairs: Juliet Osborne
and Chris Kaiser-Bunbury

- 14:30** A view across fields – Interdisciplinary perspectives on pollinators. **K**
Jessica (Jess) Knapp, Trinity College Dublin.
- 15:00** Exploring bumblebee foraging in the landscape using a novel Bluetooth tracking system. **O**
Michael Thomas Smith, University of Sheffield.
- 15:15** Landscape type & floral resources modify plant pollinator network structure and stability: implications for pathogen exchange.
Adam Vanbergen, INRAE.



15:30 The UK Pollinator Monitoring Scheme: six years on.
Claire Carvell, UK Centre for Ecology & Hydrology.

15:45 Pollinator diversity, distribution and pollination interactions along the elevational gradient in Western Himalaya, Uttarakhand.
Ritesh Kumar Gautam, Wildlife Institute of India.

WEDNESDAY 6 SEPTEMBER

Infection and Immunity I

Lecture Theatre B

Chairs: Megan Wallace
and Mark Hanson

14:30 Are you what you eat: how diet impacts body nutrients. **K**
Sheena Cotter, University of Lincoln.

15:00 Natural selection has driven the recurrent loss of an immunity gene that protects *Drosophila* against a major natural parasite.
Shuyu Zhou, University of Cambridge.

15:15 Exploring patterns and determinants of virus susceptibility across *Drosophilidae* hosts.
Ryan Imrie, University of Exeter.

15:30 Insect pathogenic fungi as a model system to study coinfections.
Eduardo Costantin, Universidade Federal de Viçosa and Lancaster University.

15:45 How does parasite coinfection influence the virulence experienced by insect hosts?
Matt Tinsley, University of Stirling.

WEDNESDAY 6 SEPTEMBER

Pollinators II

Lecture Theatre A

Chairs: Juliet Osborne
and Chris Kaiser-Bunbury

16:30 A new in vivo approach to studying sublethal, neurophysiological effects of pesticides in non-model insect pollinators. **O**
Elisa Rigosi, Lund University.

16:45 Pollination deficits and their relation to insect pollinator visitation are cultivar-dependent in an entomophilous crop. **O**
Maxime Eeraerts, Ghent University.

17:00 Exploring the potential impacts of the Asian hornet, *Vespa velutina*, to wild pollinating insects in the UK.
Simeon Wilton, UK Centre for Ecology & Hydrology.



17:15 Dynamics of invertebrates in British anthropogenic habitats.

Joshua Moon Sammy, University of York.

17:30 Does shape matter? An experimental design of Rolling Wildflower Blocks to increase insect diversity in agriculture.

Vera Kaunath, University of Potsdam.

17:45 Does infection change the smell of honey bees?

Ayman Asiri, Cardiff University.

WEDNESDAY 6 SEPTEMBER

Infection and Immunity II

Lecture Theatre B

Chairs: Megan Wallace
and Mark Hanson

16:30 How frequently are insects wounded in the wild? A case study using

Drosophila melanogaster.

Bengisu Subasi, Freie Universität Berlin.

16:45 Genotype-specific interaction of *Drosophila melanogaster* and its parasite sigma-virus.

Aleksei Belyi, University of Cambridge.

17:00 Susceptibility to bacterial pathogens across host phylogeny.

Hongbo Sun, University of Exeter.

17:15 Terminal Investment encoded by immune gene expression.

Jingbo Liu, University of Bath.

17:30 Effects of *Asaia* bacteria on mosquito fitness for improvement of SIT programs.

Alessandro Roman, University of Exeter and Wageningen University.

17:45 Sex and death: dimorphisms in host-pathogen interactions in *Drosophila melanogaster*. 

Jenny Regan, University of Edinburgh.

THURSDAY 7 SEPTEMBER

Conservation and Declines

Lecture Theatre A

Chair: Alan Stewart


09:15 Understanding insect biodiversity change at the global scale. 

Charlie Outhwaite, University College London.

09:45 Feeling the heat: can microclimate & behaviour buffer insects against climate change?

Marcus Rhodes, University of Exeter.




- 10:00** Addressing the taxonomic and capacity impediment in tropical entomology: Mobilising data on the dung beetles of Malaysia and Singapore.
Eleanor Slade, Nanyang Technological University.
- 10:15** Citizen science reveals the distribution patterns of native ladybirds in the presence of invasive alien ladybird, *Harmonia axyridis*.
Helen E. Roy, UK Centre for Ecology & Hydrology.
- 10:30** Spatial synchrony: A useful concept to manage insect populations?
James R. Bell, Rothamsted Research.
- 10:45** Ecological and life-history traits predict temporal trends in biomass of boreal moths. 
Mahtab Yazdanian, University of Oulu.
- 11:00** Turnover in space and time of mountain butterfly communities over four decades of environmental change.
Robert J. Wilson, Museo Nacional de Ciencias Naturales MNCN-CSIC.

THURSDAY 7 SEPTEMBER

Behavioural and Evolutionary Ecology

Lecture Theatre B

Chairs: Jeremy Field
and Jodie Gruber

- 09:15** Cuticular hydrocarbons as chemical cues for recognition in insect antagonistic interactions. 
Thomas Schmitt, University of Würzburg.
- 09:45** Testing behavioural thresholds of nocturnal moth acuity under day and night conditions.
Jim Galloway, University of Exeter.
- 10:00** Hide and seek – how artificial lighting affects activity, background selection and camouflage in nocturnal moths.
Emmanuelle Sophie Briolat, University of Exeter.
- 10:15** Nutritional insensitivity to mating in male fruit flies.
Mabel Sydney, University of East Anglia.
- 10:30** Rapid evolution of resistance to a parasitoid wasp used in horticultural biocontrol.
Mia Graham, University of Stirling.
- 10:45** Crossing boundaries: interspecific preferences drive frequent reproductive interference in *Tribolium* flour beetles.
Ginny Greenway, University of East Anglia.
- 11:00** Do asexual females get the best of both worlds in the sexually polymorphic aphid parasitoid *Lysiphlebus fabarum*?
Rebecca (Becky) Boulton, University of Stirling.



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Poster presentations



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All posters are displayed in the main Exhibition Hall, according to their poster number below.

Please note only the presenter's name and title of the presentation is listed in the printed programme. For a full list of authors and abstracts you can view the abstract book online via the Ento23 hub using the QR code.

Behavioural and Evolutionary Ecology

P1

Sexual conflict and population dynamics: a dung fly story.

Arianna Chiti, University of Stirling.

P2

Warming with temperature oscillation alter critical thermal maximum and metabolic rate of pea aphid.

Mukta Mala, University of Oxford.

Conservation and Declines

P3

Explainable neural network for trait-based multispecies distribution modelling.

Yoann Bourhis, Rothamsted Research.

P4

Are beetles colonising created woodland?

Sam Rogerson, University of Stirling.

P5

Varied effects of atmospheric nitrogen deposition on GB butterflies.

Hannah Risser, UK Centre for Ecology & Hydrology.

P6

Invasive European earwigs in the Falklands: How big is the threat?

Stephen Gillanders, University of Aberdeen.

P7

Impediments and proposed solutions towards Southeast Asian insect conservation in the 21st century.

Xin Rui Ong, Nanyang Technological University.

P8

Synergistic effects of Flupyradifurone and *Metarhizium brunneum* in black garden ants (*Lasius niger*, Hymenoptera: Formicidae).

Daniel Schläppi, University of Bristol.

P9

Important Invertebrate Areas – supporting future invertebrate conservation.

Lucia Chmurova, Buglife – The Invertebrate Conservation Trust.

P10

Ants as pets: How the recent increase in trading ants as pets could affect naive environments.

Harry Brindle, University of South Wales.

Genetics and Genomics

P11

Epidemiological and genetic variation between a resident and invasive population of *Colletes cunicularius* bees.

Rebecca Evans, Aberystwyth University.

P12

A novel neural pathway underlying daylength-compensated sleep homeostat in *Drosophila melanogaster*.

Ko-Fan Chen, University of Leicester.



Infection and Immunity

P13

Studying the activity of *Culicoides* midges under laboratory conditions to understand virus – vector interactions.
Christopher Sanders, The Pirbright Institute.

P14

Developing *Galleria mellonella* as a replacement model for bacterial infections.
Ivan Canada Luna, University of Exeter.

P15

Ecology-relevant bacteria drive the evolution of host antimicrobial peptides in *Drosophila*.
Mark Hanson, University of Exeter.

P16

Investigating the utility of *Culex pipiens* pupal exuviae as a non-invasive method of form differentiation.
Laura Ann Jones, The Pirbright Institute.

P17

Improving the greater wax moth, *Galleria mellonella*, as a human disease model through development of a molecular and cellular toolkit.
James Pearce, University of Exeter.

P18

Isolation and separation of the tsetse fly viruses: *Glossina morsitans morsitans* iflavivirus (GmmIV) and *Glossina morsitans morsitans* negevirus (GmmNegev).
Hannah-Isadora Huditz, Wageningen University and University of Exeter.

P19

Variation in the activity of viral suppressors of RNAi across *Drosophila* host species.
Megan Wallace, University of Exeter.

P20

Can *Drosophila melanogaster* self-medicate STIs with alcohol?
Ellie Jarvis, University of Bath.

Movement and Migration

P21

Exploring evolved solutions to muscle and age modification.
Oliver Poole, University of Exeter.

Pests, Biological Control and IPM

P22

Investigating terpenes as novel bioinsecticides.
James Hourston, Eden Research plc.

P23

Bio activities of Diatomaceous Earth against *Sitophilus oryzae* L., *Rhyzopertha dominica* F. and *Tribolium castaneum* H. in stored wheat and their effect on germination attributes.
Ranjeet Kumar, Bihar Agricultural University, India.

P24

Do 'frog(hoppers)' like wine? Grapevines as host plants of *Philaenus spumarius* Meadow spittlebug, insect vector of *Xylella fastidiosa*.
Susmita Aown, University of Sussex and NIAB.

P25

Semiochemical-based alternative concepts for the management of wireworms.
Anusha Mohan – Kumar, Rothamsted Research Institute and University of the West of England.

P26

The entomology and insectary platform at the John Innes Centre.
Mark Bridges, John Innes Centre.

P27

Sublethal insecticide exposure impacts epimutation rate and transposable element activity in the peach potato aphid *Myzus persicae*.
Benjamin Hunt, University of Exeter.

P28

Influence of tobacco host plant on success of *Episyrphus balteatus* predation on *Myzus persicae nicotianae*.
Jaimie Barnes, University of Exeter.

P29

Entomotoxicity and Chemical characterization of the extracts of *Zanthoxylum zanthoxyloides* and *Anarcadium occidentale* on *Sitophilus oryzae*.
Bolajoko Bolarinwa Adewoye, Yaba College of Technology, Yaba Lagos.



P30

The effects of a non-native insect in Antarctica on soil biogeochemistry.

Octavia Brayley, University of Birmingham (in partnership with the British Antarctic Survey).

P31

The effect of dietary components on larval and pupal development in the stable fly, *Stomoxys calcitrans*.

Melanie Nicholls, The Pirbright Institute.

P32

Does clustered egg laying enhance survival in the common bed bug, *Cimex lectularius*?

Emma Weeks, University of Florida.

P33

Exposure of the Large Pine Weevil (*Hyllobius abietis*) to entomopathogenic fungi stimulates and inhibits feeding depending on the fungal strain and LT50.

Christopher David Williams, Liverpool John Moores University.

P34

Functional and behavioural responses of the natural enemy *Anthocoris nemoralis* at elevated summer temperatures.

Laura Reeves, University of Reading.

P35

Pesticide-caused food and macronutrient deficiency in beneficial predatory beetles.

Norbertas Noreika, Estonian University of Life Sciences and Nature Research Centre, Vilnius, Lithuania.

Pollinators

P36

Mitigating the impact of beekeeping on wild pollinators: Conservation guided solutions for co-existence.

Victoria Buckle, Anglia Ruskin University.

P37

A bee's eye view of landscape change.

Clare Boyes, Manchester Metropolitan University.

P38

Climate-driven phenological shifts in emergence dates of British bees.

Chris Wyver, University of Reading.

P39

Can honey bees communicate multi-destination routes?

Joanna Brebner, University Paul Sabatier, Toulouse III.

Symbionts and Microbes

P40

The effect of gut microbiome size on the evolution of bacterial resistance.

Onur Erk Kavlak, Freie University Institute of Biology.

P41

Characterising amino acid transporters in aphid endosymbiosis.

Veronika Pavlasova, Newcastle University.





ZooKeys

- **Impact Factor:** 1.3
- **Scopus CiteScore:** 2.7
- Covers taxonomy, phylogeny, biogeography and evolution of animals



Biodiversity Data Journal

- **Impact Factor:** 1.3
- **Scopus CiteScore:** 2.1
- Covers systematics, inventories, phylogeny, evolution and biodiversity informatics, as well as publication of all types of biodiversity data



Neotropical Biology and Conservation

- **Impact Factor:** 0.7
- **Scopus CiteScore:** 1.6
- Covers systematics, evolution, ecology and behavior of Neotropical organisms

DEZ

Deutsche Entomologische Zeitschrift

- **Impact Factor:** 0.8
- **Scopus CiteScore:** 2.0
- Covers insect systematics, taxonomy, phylogeny, morphology and biogeography
- Journal of the Museum of Natural History, Berlin



Alpine Entomology

- **Impact Factor:** 0.7
- **Scopus CiteScore:** 1.6
- Covers research on insects from alpine and mountain regions
- Journal of the Swiss Entomological Society



Journal of Hymenoptera Research

- **Impact Factor:** 1.3
- **Scopus CiteScore:** 2.4
- Covers research on all aspects of Hymenoptera
- Journal of the International Society of Hymenopterists



African Invertebrates

- **Impact Factor:** 0.3
- **Scopus CiteScore:** 0.8
- Covers taxonomy and biogeography of Afrotropical invertebrates
- Journal of the KwaZulu-Natal Museum, South Africa



Nota Lepidopterologica

- **Impact Factor:** 0.7
- **Scopus CiteScore:** 1.3
- Covers research on all aspects of Lepidoptera
- Journal of the Societas Europaea Lepidopterologica



Journal of Orthoptera Research

- **Impact Factor:** 0.8
- **Scopus CiteScore:** 1.3
- Covers research on Orthoptera and allied orders
- Journal of the Orthopterists' Society



Evolutionary Systematics

- **Scopus CiteScore:** 1.9
- Covers whole-organism biology, systematics and evolution
- Journal of the Leibniz Institute for the Analysis of Biodiversity Change



Online posters

We are pleased to welcome a selection of online posters from delegates joining virtually. We encourage all in-person delegates to take the time to view these posters via the Ento23 hub using the QR code below and contact presenters with any questions you have about their research.



royensoc.co.uk/ento23-online-posters

Diversity, abundance, and successional patterns of insects on an adult pig carcass (*Sus scrofa domesticus* L.) in Cape Town, South Africa: preliminary investigation in the summer season.

Adeyemi Daniel Adetimehin,
University of Cape Town.

An environment cleaner: the secret earth boring beetles of India.

Aparna Kalawate, Zoological Survey of India, Western Regional Centre.

What we know about the magnificent Mantodea of South Africa.

Bianca Greyvenstein, North-West University.

Post-Feeding larval behaviour of the forensically relevant blow fly *Calliphora vomitoria* in the UK.

Dawn Morgan, University of Wolverhampton.

New insights of seasonal fluctuations and distribution of *Notiothauma reedi* MacLachlan, 1877 (Mecoptera: Eumeropidae) a rare living fossil from the Chilean hotspot.

Enrique A. Mundaca, Universidad Católica del Maule.

Insect communities and ecosystem processes in fragmented Chaco forests: summarizing 20 years of studies in central Argentina.

Ezequiel González, Instituto Multidisciplinario de Biología Vegetal (CONICET, UNC).

Alien bees, wasps and ants of Cyprus: current knowledge, gaps and what's next.

Jakovos Demetriou, University of Athens, Joint Services Health Unit Cyprus and Enalia Physis Environmental Research Centre.

Problem-solving through individual cognition in invasive social insects.

Srikrishna Narasimhan, Museum and Institute of Zoology, Polish Academy of Sciences.

Utilising micro-computed tomography in age estimation during the puparial period of the forensically relevant blowfly, *Chrysomya chloropyga*.

Wilmari Uys, University of Cape Town.



Delegate information: Ento23 online hub

Full delegate information, abstracts, online posters and presenter guidelines can be found on the Ento23 online hub below. You will have received a password via email to access this. Please ask a member of the RES team if you are unable to access this.



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ento23-hub

WiFi

Free WiFi is accessible throughout the venue. Find the network labelled 'Guest' and register on the page with your email address or phone number. You will need to click on the link that is sent to you to confirm your registration and you will then have access for 5 days.

Social media

We encourage all delegates to share their experience and join the discussion on social media using #Ento23.

If you see the do not Tweet symbol on a slide or poster, please respect this and do not share this content more widely.

Name badges

Please ensure you wear your name badges at all times, including at social events. You can add your pronouns and any social media handles in the optional spaces provided. If you have registered for the conference dinner, you will also find your dinner ticket in your name badge wallet.

Mobile phones

Please ensure all mobile phones and devices are switched off or on silent before entering any sessions.

Cloakroom

Coat rails will be available to use near the registration area. On the final day of the conference there will be space to leave small luggage. Members of RES staff will be in the registration area throughout the conference but please note personal belongings are left at your own risk.

Accessible toilets

Accessible toilets are available next to the registration area.

Contemplation room

Conferences can be overwhelming, it's important to take some time to relax after absorbing a lot of information and networking. A contemplation room is available in Seminar Room O. This can be used for prayer or for a quiet moment. Please do not use electronic devices in this room and be respectful if someone else is using the space.

First Aid

If you need first aid assistance, please find a member of the RES team who will be able to take you to an appointed first aider.

The nearest Automated External Defibrillator (AED) is located in Glasney Lodge (accommodation check in), which is open 24 hours.

Smoking policy

Smoking is not permitted anywhere on the Penryn campus.

Fire alarm

There are no fire alarms scheduled during the conference, so any alarms should be treated as an emergency. In the case of an emergency, please follow staff to the nearest exit and assemble in car park E.

Photography

Please note photographs will be taken throughout the conference for the use in RES communication and marketing materials. If you do not want to appear in any photos, please speak to a member of the RES team.



Insurance

It is the responsibility of the delegate to obtain their own health and travel insurance. The organisers do not accept responsibility for any injury, lost or damaged items, or travel disruptions during your stay.

Local travel

Penryn and Falmouth are located very close to each other and linked by a regular train and bus service.

The train takes 7 minutes with a short walk up a hill to the Penryn campus. The bus takes 15 minutes directly to the campus. You can catch the U3 (quickest), U1 or U2, which all run regular services from early in the morning to late at night. You can use contactless cards to pay as you board. If you are getting a single ticket, make sure to tap out as you leave the bus. For return journeys you will be provided with a ticket. You can find more information and timetables on the First Bus website: [firstbus.co.uk](https://www.firstbus.co.uk)

The Beryl e-bike hire scheme is also available and it is a 25-minute cycle between Falmouth and Penryn.

We encourage the use of public transport where possible, but there are also local taxi services available.

- **A2B Cornwall:** 01872 272989
- **Abacus Taxis:** 01326 212141
- **Radio Taxis:** 01326 313131

Nearest shop

You will find any general items you need in the campus shop during the week. This is marked on the map at the front of this programme.

Cafes on campus

On Tuesday and Wednesday, lunch, two refreshment breaks and an evening reception are included in your registration. On Thursday there is one morning refreshment break. For any additional food or drink, the campus has the following options:

- **Stannary Restaurant:** Located near the conference space, the Stannary serves

a range of hot food, snacks and drinks throughout the week. Open 08:00 – 14:00.

- **Sustainability Café:** Located near the conference space, on the first floor of the Stannary, the café serves a range of sustainable food and local hot and cold drinks. Open 09:00 – 16:00.
- **Koofi:** Koofi is a pizza café located near the campus accommodation. It has both inside and outside seating and serves Starbucks coffee, breakfasts, snacks and hand-made pizzas, plus a selection of wine and beer. Open 08:30 – 18:00.

Places to eat and drink

Penryn and Falmouth have a great variety of places to eat and drink. Below are a few recommendations for different cuisines.

- **Amanzi:** A family-run restaurant in Falmouth creating South African inspired dishes made from Cornish produce.
- **Beerwolf Books:** A bookshop with coffee and beer, what's not to love?
- **The Chintz:** A quirky bar with vividly patterned wallpaper, walls of mirrors, secret rooms and extravagant vintage furniture.
- **Chain Locker:** Pub located on Falmouth's historic quayside, with light bites, full meals, and drinks.
- **Cribbs:** Caribbean food and rum in the heart of Falmouth.
- **Gurkha:** Casual restaurant serving Indian staples and Nepalese regional dishes in Falmouth.
- **Harbour Lights:** Come here to get your fill of traditional fish and chips.
- **Indidog:** British food with a strong focus on locally sourced Cornish produce and views of the harbourside.
- **Meat Counter:** Family-run burger restaurant in Falmouth using local ingredients.
- **The Mulberry:** For a fine dining experience. Menus change with the seasons, showcasing local, sustainable ingredients from top Cornish producers.
- **PloyThai:** Restaurant and takeaway offering genuine Thai cuisine in Falmouth.
- **The Stable:** Harbourside sourdough pizza & local pints.



- **Star and Garter:** A lovely gastro pub on the harbourside serving French style chicken barbecue, or simply come for a drink with great views.
- **Verdant Brewery:** Like your beer? Verdant Taproom is located right next to their Brewery in Penryn, and they also serve fresh seafood at The Seafood Bar in Falmouth.

Weather permitting, we suggest the outdoor seating on the harbour side by the Front and Chain Locker pubs as a good place to rendezvous in the evening for a drink.

Things to do locally

Below are recommendations of things to do around Falmouth. For a full list of things to do further afield during your stay in Cornwall, head to 'Delegate Information' on the Ento23 online hub.

- **Take a stroll:** Falmouth is a beautiful town to walk around, with views over the harbourside, cobbled streets and plenty of independent cafes and shops to explore.
- **The National Maritime Museum:** Located in Falmouth, the National Maritime Museum provides an interactive display of boats and their various functions in industry and recreation.
- **Falmouth Art Gallery:** With over 2,000 pieces on display, you'll find everything from Pre-Raphaelite and impressionist to contemporary pieces here. The collection has a strong Cornwall focus but includes artworks from around the world.
- **Enys Gardens:** Said to be the oldest gardens in Cornwall, Enys Gardens date back to the early 1700s. Spread over 30 acres there are formal gardens, open meadow and woodland.
- **Glendurgan Gardens:** Glendurgan is a National Trust property, with beautifully designed gardens, including a laurel maze, set in a valley, running down to the pretty fishing village of Durgan.
- **Trebah Gardens:** A spectacular 26-acre Cornish ravine garden that descends 200 feet to a private beach on the River Helford.
- **Gylingvase & Swanpool beaches:** Two lovely beaches located to the South of Falmouth town centre. The South West Coastal Path

passes through Falmouth, which offers incredible views along the coast.

- **Pendennis Castle:** Pendennis Castle was built in the middle of the 16th century by Henry VIII as one of a pair of forts, with St Mawes Castle, to protect the Fal Estuary from the threat of invasion from France and Spain.
- **Flushing Ferry:** Flushing is a small village across the estuary from Falmouth, and the Flushing Ferry runs year-round taking day trippers across the water. There are also plenty of other boat trips running from Falmouth.
- **Helford River:** The Helford River is a large estuary nestled between the Western edge of Falmouth Bay and eastern side of The Lizard Peninsula. It is renowned for its scenic beauty and marine ecology.

Code of conduct

Our Ento23 conference provides a harassment-free experience for everyone, in-person and online, regardless of gender, gender identity and expression, age, sexual orientation, disability, physical appearance, body size, race, ethnicity, religion (or lack thereof), or technology choices. We do not tolerate harassment of conference participants or staff in any form. Sexual language and imagery is not appropriate for any conference venue, including talks, workshops, social occasions and on all social media. Conference participants violating these rules, in-person or online, may be sanctioned or expelled from the conference without a refund at the discretion of the conference organisers.

If you would like to raise any concerns, please speak to RES staff members, Emilie Aimé or Luke Tilley. You can also email them on: emilie@royensoc.co.uk and luke@royensoc.co.uk

We wish everyone a safe and enjoyable conference.



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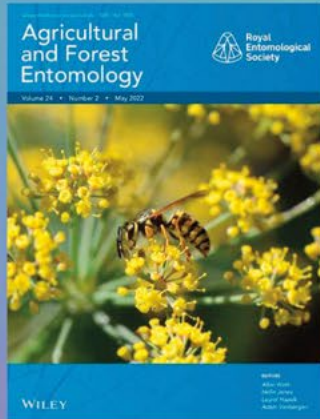
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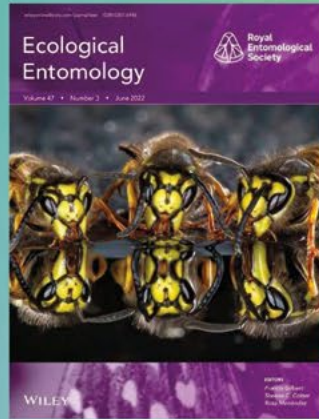


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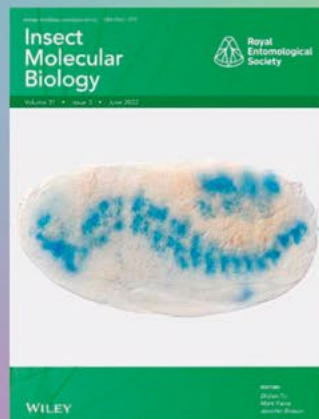
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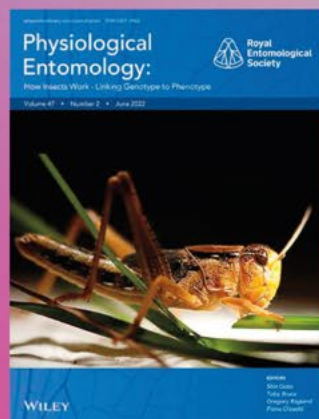


Handbooks for the Identification of British Insects
Most species available, from aphids to wasps!

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