



Ento24

10 – 12 September 2024
University of Liverpool



Annual conference PROGRAMME



Royal
Entomological
Society

Lime Street Central Station & City Centre

Supermarket, cash point & coffee shop

Main conference venue

- Building entrance
- Accessible entrance
- P Visitor parking
- Staff parking
- Car park barrier
- Secure cycle parking
- Library
- Galleries & Museum
- Refreshments
- Coach pick-up/drop-off
- Bus stop
- Defibrillators
- Civic directions
- Station
- Buses
- Shops
- Traffic



NORTH CAMPUS

CENTRAL CAMPUS

SOUTH CAMPUS





Discover...

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The next Insect Week is 23 – 29 June 2025, 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 2024 annual conference, Ento24.

Whether you are joining in Liverpool or online, there are some great days ahead to share research and ideas, develop skills and build new connections. With around 300 delegates, in-person and online, joining from around the world, this is again the largest Ento conference we have held. We look forward to seeing this platform for entomologists across academia and industry continue to grow.

The programme focuses on the Grand Challenges in Entomology, which run through our themed sessions, with a focus on host-microbiome interactions, vector-borne diseases, biocontrol, taxonomy and systematics and insect conservation and diversity. 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 across a range of topics. There are also plenty of social events to meet staff and trustees of the Society, engage with 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 stand 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.

If you are a member, please help shape the future of our Society by attending our AGM from 13:30 – 14:30 on Tuesday 10 September. You will hear about key Society updates and new Council members will be elected.

Finally, we are excited to bring Ento24 to Liverpool, which hosts many key institutes supporting entomological research. We thank the convenors that represent four of these institutes for putting together a diverse programme and we hope that during your time here you get to explore some of the activities this vibrant city has to offer.

I hope everyone uses Ento24 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.



Jane Hill

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



Your Ento24 convenors

We are delighted to be hosting Ento24 in the city of Liverpool, which has a wide range of institutions supporting entomological research. The convenors represent four of these: The University of Liverpool, Liverpool John Moores University, Liverpool School of Tropical Medicine and Edge Hill University.



Sharon Zytynska University of Liverpool

Sharon Zytynska is a BBSRC David Phillips Fellow and lecturer at the University of Liverpool. Her research aims to understand how soil microbes induce crop plant resistance against insect pests, from the genome to the field. She is also researching the role of aphid endosymbionts in aphid population dynamics, and the impact of plant inoculation both on aphid-endosymbiont and aphid-parasitoid interactions.

Founded in 1881, the University of Liverpool is a prestigious member of the Russell Group, celebrated globally for its excellence in teaching and research. The Department of Evolution, Ecology and Behaviour (DEEB) is a research-driven department dedicated to exploring life on Earth across all biological scales, from the molecular level to global ecosystems. Their entomological work examines evolutionary principles, host-microbiome interactions and the control of insect pests in agricultural systems.



Christopher Williams Liverpool John Moores University

Chris Williams is an applied entomologist with interests in insect conservation and biological control. He has studied the conservation ecology and ecosystem services of marsh flies (Sciomyzidae) and their molluscan host/prey communities on temporary wetlands (turloughs) in the West of Ireland. He has also worked on a national survey of wetland Carabidae in the Republic of Ireland. His biocontrol work involves the control of the large pine weevil (*Hyllobius abietis*) using entomopathogenic nematodes and fungi. He has also worked on essential oils and the slug-killing nematode *Phasmarhabditis hermaphrodita* in the control of pestiferous slugs.

In 2023 Liverpool John Moores University celebrated its bicentennial having been established as the Liverpool Mechanics Institute in 1823. Today, in the School of Biological and Environmental Sciences, there is a small but dedicated team of invertebrate biologists working on a diverse range of subjects from microbiome effects on *Drosophila*, genomics of vectors of medically important diseases, genetics of house spiders, genetics and biology of slug-killing nematodes and applied entomology more generally.





Christopher Jones **Liverpool School of Tropical Medicine**

Christopher Jones is a Senior Lecturer in the Department of Vector Biology at the Liverpool School of Tropical Medicine (LSTM). He has worked on several insects of medical and agricultural importance, contributing to understanding mosquito behaviour, genetic mechanisms of insect migration and the impacts of insecticide resistance. His current research focuses on the dispersal ecology of insect vectors and the impact of anthropogenic processes on vector populations. He serves as an Associate Editor for Medical Veterinary Entomology.

This year the Liverpool School of Tropical Medicine (LSTM) celebrates its 125th anniversary year following its founding in 1898. Globally, the Vector Biology Department in LSTM is one of the largest research groups of its kind conducting research that spans functional genomics, clinical trials, field ecology and the development of tools for monitoring and evaluation of disease transmission. Laboratories at LSTM include state-of-the-art facilities for vector research combined with substantial experience in field-based research.



Michelle Davis **Edge Hill University**

Michelle Davis is an Early Career Researcher and recently appointed Lecturer in Ecology. Her specialism is as an ecological geneticist with a particular focus on conservation and while she is willing to work on any species which isn't a plant, and even occasionally those that are, she maintains a special place in her heart and research for her PhD study species, the Marsh Fritillary Butterfly (*Euphydryas aurinia*), and is determined to one day actually see an adult in flight.

Edge Hill University has grown significantly from its origins in 1885 as the first non-denominational women's teacher training college and in 2023 celebrated 90 years at its Ormskirk Campus. The Department of Biology is ever growing, expanding into the new Life Sciences building just last month. Within the department's diverse specialisms there is a core group of invertebrate researchers who address a range of research topics including the challenges of conserving rare or endangered species we wish to preserve and controlling unwanted or harmful species such as the several mosquito species, which present a risk to human health both locally and globally.



New Scientist Live 2024



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 12 - 14 October this year.**

To apply, please scan this code to complete a short form by 16 September.



Programme overview

	Tuesday 10	Wednesday 11	Thursday 12
7:00		07:00 – 07:45 Conference Run	
8:00	08:00 – 17:00 Registration Open	08:15 – 09:15 Women in Entomology	08:30 – 09:30 Grand Challenges in Entomology
9:00	09:00 – 10:15 Opening Ceremony and Plenary: Michael Samways	09:30 – 10:30 Plenary: Steve Torr	09:45 – 11:45 Vector Surveillance and Control
10:00	10:15 – 10:45 Refreshment Break & Meet the Speaker	10:30 – 11:00 Refreshment break & Meet the speaker	09:45 – 11:45 Monitoring and Controlling Pests
11:00	10:45 – 12:45 Pests and Natural Enemies	11:00 – 13:00 Conservation and Diversity	11:45 – 12:15 Refreshment Break & Meet the Speaker
12:00	10:45 – 12:45 Taxonomy and Diversity	11:00 – 13:00 Genetics and Genomics	
13:00	12:45 – 13:30 Lunch	13:00 – 14:00 Lunch	12:15 – 13:30 Plenary: Susanne Foitzik & Close
14:00	13:30 – 14:30 AGM	13:30 – 14:00 EDI Drop-in	
15:00	14:45 – 16:30 Host-Microbiome Interactions	14:00 – 15:30 Workshops	
16:00	14:45 – 16:30 Evolution, Plasticity, and Phenotypic Adaptation	15:30 – 16:00 Refreshment break & LGBTQ+ Meet-up	
17:00	16:30 – 17:00 Refreshment break	16:00 – 18:00 Vectors and Pathogen Transmission	16:00 – 18:00 Pollinators
18:00	17:00 – 18:30 Biocontrol	18:00 – 19:00 Poster session & Pitch-a-Paper	
19:00	18:30 – 19:30 President's Reception & Poster Session		
20:00	19:45 – 22:30 EntOlympics at The Font	19:30 – 23:30 Conference dinner at Liverpool World Museum	
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 Ento24 programme and on Thursday morning we will be running a workshop to discuss how the Society can support and resource the Grand Challenges as it develops its new strategy for 2025-2028 (see page 11).

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



Plenary speakers

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



Michael Samways
Stellenbosch University
Tuesday 10 September
09:15 – 10:15
Lecture Theatre 1

Michael Samways (PhD, London University) is an Emeritus Distinguished Professor at Stellenbosch University, South Africa. He focuses on many aspects of insect conservation from philosophy through to strategy implementation, nationally and internationally.

Michael is recipient of the John Herschel Medal of the Royal Society of South Africa, Senior Captain Scott and Gold Medals of the South African Academy of Science and Arts, and Gold Medal of the Academy of Science of South Africa. He received the life-time Stellenbosch University Chancellor's Award, IUCN/SSC Chair's Citation of Excellence, and the Marsh Award from the Royal Entomological Society for outstanding and exemplary lifetime contribution in Insect Conservation. His latest book is Conservation of Dragonflies: Sentinels for Freshwater Conservation (CABI/RES, 2024).

Talk title: **Caring for irreplaceable insects: effective conservation strategies in biodiversity hotspots.**

Michael Samways' plenary lecture is sponsored by Harper Adams University.



**Harper Adams
University**



Steve Torr
Liverpool School of Tropical
Medicine
Wednesday 11 September
09:30 – 10:30
Lecture Theatre 1

Steve Torr is a Professor of Neglected Tropical Diseases at the Liverpool School of Tropical Medicine (LSTM) where he leads the Tsetse Group.

He has over 40 years' experience of research on tsetse flies which transmit trypanosomes causing sleeping sickness (human African trypanosomiasis, HAT) in humans and animal African trypanosomiasis (nagana) in livestock.

Steve's research interests have focussed primarily on field-based analyses of tsetse behaviour and ecology leading to improved and cost-effective methods of tsetse control. In 2024, LSTM was awarded a Queen's Anniversary Prize for leading an international research programme which developed Tiny Targets, a simple and affordable method of controlling tsetse which currently protect ~2.5 million people from sleeping sickness across six African countries.

Talk title: **The Tsetse problem: harnessing vector behaviour and ecology to provide solutions.**



Susanne Foitzik
Johannes Gutenberg University
Mainz
Thursday 12 September
12:15 – 13:15
Lecture Theatre 1

Susanne Foitzik is an evolutionary biologist, behavioural ecologist and internationally known for her work on ants. After completing her PhD in ant evolution and behaviour and conducting post-doctoral work in the US, she became a professor at Ludwig Maximilian University of Munich.

She now holds a chair at Johannes Gutenberg University in Mainz, Germany, where she studies the behaviours, social evolution and genomics of ants. Her work focusses on host-parasite coevolution, behavioural genomics of division of labour and the behaviour of slave making ants. Her scientific findings have been published in more than 130 scientific papers. She is also author of a popular science book on ants.

Talk title: **(Co)Evolution and molecular regulation of ant behaviour, chemical and life history traits.**



Workshops

Parallel workshops take place on Wednesday 11 September. You can select from any of these sessions and pre-booking is not required, simply turn up at the workshop you would like to take part in. On the morning of Thursday 12 September, we will lead a session on the Grand Challenges in Entomology.

Getting funded: small grant applications for research and outreach

Wednesday 11 September, 14:00 – 15:30
Teaching Room 5

Organiser: Luke Tilley (RES Director of Communications & Engagement)

Join us for a workshop on applying for funding for entomological projects. This session will provide an overview of the funding opportunities available, focusing on small and medium-sized grants, funds from NGOs and trusts, and the range of grants offered by the Royal Entomological Society.

Whether you are an early-career researcher or an established scientist, this session will provide valuable guidance and resources to help you navigate the complexities of funding applications. Join us to refine your skills and broaden your funding horizons.

Public engagement through comics and games

Wednesday 11 September, 14:00 – 15:30
Flex 2

Organisers: Fran Sconce (RES Senior Outreach & Learning Officer), Rudi Verspoor (University of Liverpool) and Liam Crowley (University of Oxford)

At this workshop we introduce how comics and games can be used as tools for public engagement about insects. Hear about case studies of Ento-Club comic from Rudi Verspoor and Battlin' Bugs card game from Liam Crowley, both supported by the RES Goodman Fund. After hearing about their experiences, there will be time to create and develop your own ideas and get feedback. No prior experience or knowledge is needed, just come with ideas and creativity!

Next steps for improving insect welfare in research and education

Wednesday 11 September, 14:00 – 15:30
Teaching Room 4

Organisers: Meghan Barrett (Indiana University – Indianapolis) and Bob Fischer (Texas State University)

In 2023, entomologists developed strategies about improving insect welfare in research and education at two facilitated workshops held at the RES and ESA national meetings. The entomological community was then surveyed on their attitudes towards, and knowledge of, insect sentience and welfare, training and practices already employed related to insect welfare, and the efficacy and implementation of the strategies suggested by their colleagues. This workshop will share the results of this survey and invite entomologists to participate in a discussion about next steps for promoting insect welfare in research and education.



Research impact and innovation

Wednesday 11 September, 14:00 – 15:30
Teaching Room 6

Organiser: Gia Aradottir MBA (Consultant, Mamore Research and Innovation Limited & Trustee and Treasurer Royal Entomological Society)

A workshop exploring how your research can benefit the wider world.

There is increasing pressure on academics to show the impact of their research in areas ranging from contribution to public good through to innovative products and services. Showing how research has delivered impact in this way can be an important diversifier for academics in terms of career progression within and outside academia, visibility and funding options. This interactive workshop will explore what innovation and impact is, focus on how researchers can identify areas of their work that can become useful in practise by different stakeholders and how to progress with scientific ideas from knowledge to innovation.

Resourcing the Grand Challenges: Pure science and human-insect interaction

Thursday 12 September, 08:30 – 09:30
Teaching Room 4

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

The 'Grand challenges in entomology: Priorities for action in the coming decades' was published in *Insect Conservation and Diversity* in 2023. In response, the RES is looking at how it can support and resource the Grand Challenges as it develops its new strategy for 2025–2028. This workshop will explore the two theme areas of 'Pure Science' (including Methods and Techniques, Blue Skies and Taxonomy) and 'Human-Insect Interaction' (including Technology and Resources, Ecosystem Benefits and Pests). We will explore what the needs are to support these areas and the ways RES can work in collaboration to drive these areas forward in the coming years.

See page 08 for more information.



New organisational membership

Do you want to support our work through your organisation?

Join our new organisational membership scheme celebrating a diverse range of partners in insect science. With tailored packages including individual membership discount and employee event support options, partners can choose from four different levels of membership from £750 + VAT pa.





drosophila | bacteria | specimens



Darwin Biological specialises in supplying drosophila, bacteria and specimens to UK schools and universities. As all our drosophila are bred and segregated in-house we have the capacity for large and bespoke orders.



Networking and activities

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 8. If you complete all squares, you get a full house with a special prize courtesy of NHBS. Once you've completed a row head over to the RES stand. Good luck!



Draw your study insect

Get your artistic juices flowing and make a piece of art about your study insect(s). Head to the activity area opposite the RES stand where there will be paper and pens available and a board to pin your final creation. We'll Tweet some of our favourites throughout the conference.

TUESDAY 10 SEPTEMBER

Opening ceremony

9:00 – 09:15

Lecture Theatre 1

Join the RES President, RES Chief Executive Officer and conference local convenors as they welcome delegates to Ento24!

Meet the speaker: Michael Samways

10:15 – 10:45

Teaching Room 6

Grab a coffee and cake and chat to Michael Samways. This is an opportunity for students and early career entomologists to ask our plenary speakers questions in a small, informal setting. Michael Samways has also recently published *Conservation of Dragonflies: Sentinels for Freshwater Conservation* and there will be a few copies of the book available to view and discuss with the author.

Royal Entomological Society's Annual General Meeting (AGM)

13:30 – 14:30

Lecture Theatre 1

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

18:30 – 19:30

Exhibition Hall

Share drinks with old friends and new colleagues at the official welcome reception for delegates hosted by RES President, Jane Hill.

This is also the first of two evening poster sessions. We encourage delegates to view the posters, engage with presenters, and ask questions about their work.



EntOlympics

19:45 – 22:30

The Font

We are delighted to welcome back EntOlympics – an entomology quiz 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 Ento24, 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. The Font is a short walk from the main conference venue, meet at the registration desks to head over in a group. You can purchase your own food and drinks at the venue.

WEDNESDAY 11 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 – 07:45

Meeting point: University Square

Want to get your steps up ahead of another productive conference day? Join convenor, Chris Jones, who will lead a guided 5k run. Meet at 07:00 on the paved area of University Square in front of the red bricked Guild of Students Hall. **Three words location: ///worry.pass.people**

Women in Entomology

08:15 – 09:15

Teaching Room 4

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. There will be tea and coffee available, but make sure to grab a bite to eat before arriving.

Meet the speaker: Steve Torr

10:30 – 11:00

Teaching Room 6

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

Meet the RES Equality, Diversity and Inclusion Committee

13:30 – 14:00

RES Stand

Come and meet the new Equality, Diversity and Inclusion Committee (EDI) at the RES. We'd love to meet delegates so we can update you on the progress we have made so far and hear from you about any input and ideas you might have to shape the future of the RES' culture and global impact.

There will also be a board available in the main exhibition hall to add any ideas you might have around EDI linked to the key strategic aims of the Society. Please add your ideas over the course of the event, which will then be fed into the next meeting of the committee.



Parallel workshops

14:00 – 15:30

Various locations

See description on page 10.

LGBTQI+ meet-up

15:30 – 16:00

Teaching Room 7

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 – 23:30

Liverpool World Museum

Tickets for the conference dinner have now sold out. If you purchased a ticket in advance, join us at Liverpool World Museum to continue networking over dinner. This is a 15-20-minute walk from the conference venue. If you are going directly from the poster session, meet in the registration area to walk over as a group. Your dinner ticket can be found in your name badge.

THURSDAY 12 SEPTEMBER

Resourcing the Grand Challenges – Pure Science and Human-Insect Interaction

08:30 – 09:30

Teaching Room 4

See description on page 11. There will be tea and coffee available, but make sure to grab a bite to eat before arriving.

Meet the speaker: Susanne Foitzik

11:45 – 12:15

Teaching Room 6

Grab a coffee and cake and chat to Susanne Foitzik. 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 Susanne's talk.

Upcoming events

09 October

Online Talk
RES President Elect Jane Stout of Trinity College Dublin

30 October

Thinktank Museum, Birmingham
A public debate – Feeding the Future: Using Insects as Food and Feed

31 October

Thinktank Museum,
Birmingham & Online
IAFF24 Insects as Food and Feed:
Delivering insect proteins in the UK

02 November

Manchester Museum
Regional Meeting: An afternoon
at Manchester Museum

06 November

Natural History Museum,
London & Online
Orthoptera SIG Meeting

07 November

Newcastle University & Online
Sustainable Agriculture SIG:
Innovations in research
and practice



Exhibitors

We are pleased to welcome the following organisations as exhibitors at Ento24. 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

UK made accessories for entomologists



ArthroPods
www.ArthroPods.co.uk



CABI

FLYBOX



Harper Adams
University

ZANTIKS

behaviour, simply



PRINCETON
UNIVERSITY
PRESS



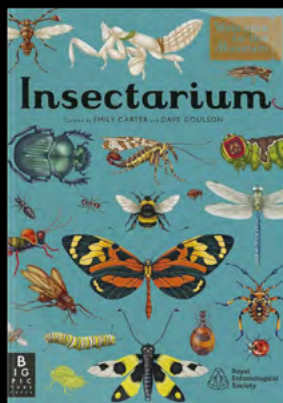
RHS



University of
Reading

New books from the RES

The RES has partner published two exciting new popular science books, which are out this month. Find out more at the RES stand.



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 1 and Lecture Theatre 3, 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 (Mountford Hall) and arranged according to your poster number, found in this programme.

You can put your poster up anytime from 08:00 on Tuesday 10 September. We recommend having this in place for the first coffee break.

All posters must be dismantled from the boards by 13:30 on Thursday 12 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 10 September, 18:30 – 19:30
- **Poster Session:**
Wednesday 11 September, 18:00 – 19:00

Student prizes

There will be prizes for the best talk, best poster and best online poster. Judging will take place during the conference based on criteria including: visual style, scientific content, originality of research and effectiveness of communication.

We thank CABI and NHBS for providing prizes.

Sharing content

We encourage delegates to share updates from the conference on social media using #Ento24, it's a great way to connect with others 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.



PHILOSOPHICAL TRANSACTIONS B

Towards a toolkit for global insect biodiversity monitoring

With over 1 million insects known to science, and millions more waiting to be described, how do we keep track of them all in the face of global change? This theme issue showcases cutting-edge advancements in the fields of DNA sequencing, computer vision, acoustic monitoring and radar for use in insect biodiversity monitoring.

This theme issue includes opinion pieces, field studies and reviews, compiled and edited by Roel van Klink, Julie K Sheard, Toke T Høye, Tomas Roslin, Leandro A Do Nascimento and Silke Bauer.

View online at: bit.ly/PTB1904

To purchase print issues at a reduced price of £40 per issue (usual price £65) contact sales@royalsociety.org and quote discount code TB1904.

THE
ROYAL
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Image: A male *Euceraia insignis* from Barro Colorado Island, Panama. © Christian Ziegler.



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Preparing you for a career in the fascinating field of insect science.

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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 Ento24 hub using the QR code below.



royensoc.co.uk/
ento24-programme

All talks marked with  will be given online.

TUESDAY 10 SEPTEMBER

Pests and natural enemies

Lecture Theatre 1 | Chair: Chris Ranger

RES Journal: Agricultural and Forest Entomology

10:45

Md Munir Mostafiz, Teagasc

Life-history traits of English grain aphid, *Sitobion avenae* (Fabricius) on winter barley

11:00

Charlotte Howard, University of Reading 

Powerful Flowers

11:15

Lami Jinatu Wamdeo, University of Ghana

Influence of cropping system in the management of fall armyworm, *Spodoptera frugiperda* (J. E. Smith) (Lepidoptera: Noctuidae) and natural enemies' conservation in Kpong, Ghana

11:30

Amanuel Tamiru, International Centre of Insect Physiology and Ecology (icipe)

Unravelling mechanisms of Push-Push farming for managing fall armyworm (*Spodoptera frugiperda*) pest

11:45

Will Paine, University of Oxford

Parasitoids drive associations between aphid biotype and protective symbiont

12:00

Megan Parker, University of Liverpool

Reducing aphids on barley by exploiting beneficial species interactions with rhizobacteria and natural enemies

12:15

Maximilian Schughart, Teagasc

Identifying the impact of insecticide resistant grain aphids (*Sitobion avenae*) on barley yellow dwarf virus epidemiology in Ireland

12:30

Hayden Tempest, Harper Adams University & NIAB

Forficula auricularia as a natural enemy of woolly apple aphid in commercial apple orchards



Taxonomy and diversity

Lecture Theatre 3 | Chair: Shaun Winterton

RES Journal: Systematic Entomology

- 10:45** **Beulah Garner, Natural History Museum (London)**
Concatenating historical specimens with phylogenetics: accelerating biodiversity discovery by high throughput imaging and sequencing
- 11:00** **Kirstin Williams, KwaZulu-Natal Museum** 
The state of the genus *Hybomitra* Enderlein (Diptera: Tabanidae) in the Afrotropics including the discovery of a new species from South Africa
- 11:15** **Bikash Sahoo, National Institute of Science Education and Research (NISER)** 
Dual Taxonomy Dilemma: Unravelling taxonomic challenges in army ant genus *Aenictus* Shuckard 1840 (Hymenoptera, Formicidae)
- 11:30** **James Buxton, Agriculture Victoria** 
Towards a standardised approach to Australian ant species delimitation
- 11:45** **Luis Moliner Cachazo, King's College London & Natural History Museum (London)**
Characterising aquatic macroinvertebrate diversity in the Okavango Delta (Botswana) using taxonomical and molecular techniques
- 12:00** **Alison Karley, The James Hutton Institute**
Has the diversity of flying aphids changed over the past 70 years? An analysis of Scottish suction trap data
- 12:15** **Stuart E. Reynolds, University of Bath**
Marine insects: Exclusion of hexapods from the sea by limited reproductive capacity
- 12:30** **Dominic Phillips, Natural History Museum (London)**
Darwin Tree of Life: An Insecta perspective

Host-microbiome interactions

Lecture Theatre 1 | Chair: Sharon Zytynska

- 14:45** **Ailsa McLean, University of Oxford**
Realistic climate warming scenarios produce little change in symbiont-mediated resistance of aphids against parasitoids
- 15:00** **Laura Martinez-Chavez, Harper Adams University**
Is there a link between protective endosymbionts, genotypes and parasitoids of the potato aphid (*Macrosiphum euphorbiae*) on strawberry crops?
- 15:15** **Hongbo Sun, University of Exeter**
Effect of the microbiome on pathogen susceptibility across host species
- 15:30** **Christopher Ranger, USDA-Agricultural Research Service**
Stress-induced tree metabolites influence ambrosia beetle-fungus-host interactions
- 15:45** **Ida Cecilie Jensen, Aarhus University**
Fungus fighters: Associated microbes of wood ants (*Formica polyctena*) and weaver ants (*Oecophylla smaragdina*) inhibit plant pathogens
- 16:00** **Jacqueline Wahura, International Centre of Insect Physiology and Ecology (ICIPE) & University of Cape Town** 
An influential insider: *Microsporidia* MB influences the host gut microbiota profile
- 16:15** **Tara Joseph, Liverpool School of Tropical Medicine**
Mosquitoes reared in distinct insectaries within an institution possess divergent microbiomes



Evolution, plasticity and phenotypic adaptation

Lecture Theatre 3 | Chair: Sheena Cotter

RES Journal: Ecological Entomology

14:45

Sheena Cotter, University of Lincoln

Lifelong effects of the larval environment on adult traits

15:00

Uroš Savković, University of Belgrade

Long-term laboratory evolution experiment: Host shift changes the life-history strategies and the levels of phenotypic plasticity in seed beetle (*Acanthoscelides obtectus*)

15:15

Kumari Riya Pati, University of Edinburgh

The Plasticity of Ageing for Competitive ability in 'Burying beetles' *Nicrophorus vespilloides*

15:30

Erin Foley, University of Leicester

Establishing a tractable epigenetic clock in the parasitic jewel wasp *Nasonia vitripennis*

15:45

Christophe Patterson, Durham University

Multivariate trait evolution of a seasonal polyphenism at the continental scale

16:00

Joseph Rees, University of Lincoln

Hands off or helicopter parenting? The role of parenting in shaping aposematic signals of *Nicrophorus vespilloides*

16:15

Benjamin Jarrett, Bangor University

The evolution of plasticity in response to host plants in *Narnia femorata* (Hemiptera: Coreidae)

Biocontrol

Lecture Theatre 1 | Chair: Alison Karley

17:00

Toby Bruce, Keele University

Bioactive volatiles from push-pull companion crops repel fall armyworm and attract its parasitoids

17:15

Julia Morgan, Royal Horticultural Society

Natural enemies and cultural control of aphids on runner bean, *Phaseolus coccineus*, for home gardeners

17:30

Wan Nurainie Wan Ismail, University of Edinburgh & Universiti Malaysia Sarawak (UNIMAS)

Parasitoid nectar provision hypothesis: Does floral nectar improve biological control by parasitoids?

17:45

Christopher Williams, Liverpool John Moores University

Forest applications of entomopathogenic nematodes

18:00

Sonja Steinke, Forest Research

Nematodes and predators: Biocontrol strategies against insect forest pests in Scotland

18:15

Jordan Cuff, Newcastle University

Networking nutrients: Integrating nutrients into networks to investigate the drivers of biocontrol and the structure of entomological interactions



Behavioural and sensory ecology

Lecture Theatre 3 | Chair: Toby Bruce

RES Journal: Physiological Entomology

17:00

Aphrodite Kantsa, ETH Zurich 

What do insects see and smell in flowers and leaves?

17:15

Abra Ash, Cranfield University & UK Centre for Ecology and Hydrology

Designing artificial flowers for automated pollinator monitoring

17:30

Ritabrata Chowdhury, University of Cambridge

"Game of thorns": Counter-adaptions of Heliconiini caterpillars to Passiflora leaves with sharp trichomes

17:45

Sofia Dartnell, University of Cambridge

The role of olfaction in cuckoo bumblebee host-finding behaviour: choice experiments on the accuracy and drivers of invasion

18:00

Mandela Fernandez-Grandon, Natural Resources Institute

Developing proboscis extension reflex assays for hoverflies to explore learning and memory

18:15

Maria-Rosa Paiva, NOVA University of Lisbon 

New tools to meet industry needs: Decoding *Coroebus undatus* (Coleoptera; Buprestidae) chemical ecology

WEDNESDAY 11 SEPTEMBER

Conservation and diversity

Lecture Theatre 1 | Chair: Jane Hill

RES Journal: Insect Conservation and Diversity

11:00

Helen Barber-James, Ulster Museum, National Museums Northern Ireland

Diversity of Ephemeroptera, Plecoptera and Trichoptera species in Ireland, filling in the gaps

11:15

James Bell, Keele University

Drivers and Repercussions of UK Insect Declines (DRUID): Artificial Neural Networks predict species distributions for a wide range of insect taxa

11:30

Dylan Carbone, UK Centre for Ecology and Hydrology

The role of local expertise in enhancing biodiversity monitoring in data-sparse regions

11:45

Lindsey Barnes, University of Cambridge

Here be dragons: Mapping global dragonfly and damselfly exposure to major threats

12:00

Norashikin Fauzi, Universiti Malaysia Kelantan 

Bioindicators of water quality under threat: Assessing microplastics presence and correlation with functional feeding groups in immature aquatic insects of EPT

12:15

Jamie Weir, University of Edinburgh

Does timing matter for caterpillars? Revisiting the paradigm of phenological mismatch

12:30

Jeremy Thomas, University of Oxford

Successful restoration of the Endangered Large blue butterfly (*Phengaris/Maculinea arion*) to the Cotswolds following selection for advanced phenology in Somerset

12:45

Helen Taylor, Royal Zoological Society of Scotland

The forgotten masses: challenges and opportunities in invertebrate conservation translocations



Genetics and genomics

Lecture Theatre 3 | Chair: Cecilia Tamborindegy

RES Journal: Insect Molecular Biology

11:00

Zhijian (Jake) Tu, Virginia Tech


Stably heritable sex conversions in an arboviral vector *Aedes aegypti*: new insights and applications

11:15

Jay Goldberg, John Innes Centre

Towards understanding the genetic basis of polyphagy in the green peach aphid (*Myzus persicae*)

11:30

Antonella Bacigalupo, University of Glasgow 

Whole genomes for Reduviidae (Hemiptera: Heteroptera): Comparative genomics between predatory and hematophagous vector species

11:45

Laura Campbell, Durham University

Genome evolution of plant farming ants Aphid effector interacts with AMSH deubiquitinases to suppress pattern-triggered immunity

12:00

Zedi Gao, University of Hertfordshire

Comparative genomic and functional analysis of olfactory receptor genes in *Psylliodes* species to determine host plant choice

12:15

Julien Devilliers, University of Leicester

Molecular evolution of vision: combining single-cell, bulk RNA-seq and microscopy to unravel the visual system in mosquitoes

12:30

Aschalew Lemma Demie, Wageningen University and Research

Insights into the genetic diversity and insecticide resistance of the fall armyworm (*Spodoptera frugiperda*) in Ethiopia

12:45

Matteo Gravino, John Innes Centre

Aphid effector interacts with AMSH deubiquitinases to suppress pattern-triggered immunity

Vectors and pathogen transmission

Lecture Theatre 1 | Chair: Zhijian (Jake) Tu

RES Journal: Insect Molecular Biology

16:00

Cecilia Tamborindegy, Texas A&M University

Transmission of '*Candidatus Liberibacter solanacearum*' by the potato psyllid *Bactericera cockerelli*

16:15

Daniel Leybourne, The University of Liverpool

Genetic diversity in aphid populations drives successful transmission of barley yellow dwarf virus

16:30

Enakshi Ghosh, Colorado State University 

Towards a 'disease-smart' assisted migration strategy for insects: leveraging immune priming to enhance population fitness and pathogen resistance

16:45

Pedro Vale, University of Edinburgh 

IMD-mediated innate immune priming increases *Drosophila* survival and reduces pathogen transmission

17:00

Simon Kiplimo, International Centre of Insect Physiology and Ecology

Unlocking the secrets of Tsetse flies: Exploring olfaction and innovations in trypanosome eradication



17:15

Sara Rooney, Liverpool School of Tropical Medicine
USUV and *Wolbachia*

17:30

Idalba Serrato, MIVEGEC, IRD

Multiple flaviviruses secrete a viral non-coding RNA in mosquito salivary vesicles to enhance saliva infectivity by reducing early IFN response

17:45

Christida Estu Wastika, Liverpool School of Tropical Medicine

A single-sugar-fed modulates *Aedes aegypti* vectorial capacity

Pollinators

Lecture Theatre 3 | Chair: Jane Stout

16:00

Stella Shackel, University of Liverpool

Effectiveness of Nature-based Solutions for the diversity and abundance of insect pollinators in urban and sub-urban Liverpool

16:15

Sarah Arnold, NIAB, East Malling

Insect ecosystem services in protected soft-fruit – influence of landscape composition

16:30

Cedric Maforimbo, University of Greenwich

More bees for more beans: Harnessing pollination for promoting yield in common beans (HaPPY Beans)

16:45

Cassandra Uthoff, Helmholtz Centre for Environmental Research GmbH – UFZ

Impact of acute pesticide exposure on honeybee worker (*Apis mellifera*) behaviour and gut-brain molecular changes

17:00

Lydia Thompson, University College Dublin

Impacts of non-lethal sampling behaviour on bumblebee foraging

17:15

Morgan Morrison, Royal Holloway, University of London

Alarms buzzing: Pathogen spillover from honeybees to wild bees European protected areas

17:30

Christopher Noroozi, University of Sheffield

Developing and deploying a novel Bluetooth tracking system to reconstruct bumblebee flight paths using probabilistic machine learning

17:45

Sarah Scott, University of Cambridge

Potential exposure routes and bioaccumulation of trace metals in social bees

THURSDAY 12 SEPTEMBER

Vector surveillance and control

Lecture Theatre 1 | Chair: Lisa Reimer

RES Journal: Medical and Veterinary Entomology

09:45

Luigi Sedda, Lancaster University

Optimising mosquito surveillance: Adaptive designs tested in Mozambique and Ghana

10:00

Sylvester Coleman, Liverpool School of Tropical Medicine

Mosquito dynamics in beneficiary communities of the Shire Valley Transformation Project (SVTP) in Chikwawa District, southern Malawi: Insights and implications for vector control

10:15

Elsie Isiye, South East Technological University (SETU)

A DNA-based approach to surveillance of *Culicoides* vectors Bluetongue (BTV) and Schmallenberg (SBV) viruses in Ireland



10:30

Riona Walsh, University of Galway

Predicting *Ixodes ricinus* abundance in the west of Ireland

10:45

Lesley Bell-Sakyi, University of Liverpool

Insect cell lines: research tools from the Tick Cell Biobank

11:00

Martyn Wood, IMBB FORTH

Discovery and screening of novel insecticidal bacteria, their sonicates and their solvent-extracts against *Culex pipiens molestus* larvae

11:15

Vishaal Dhokiya, Liverpool School of Tropical Medicine

Towards the use of novel high-density anopheles-specific *Wolbachia* strains for anopheles vector control

11:30

Walter Leal, University of California-Davis

In my hands, DEET performs better than Picaridin

Monitoring and controlling pests

Lecture Theatre 3 | Chair: Jordan Cuff

RES Journal: Agricultural and Forest Entomology

09:45

Katharine Preedy, Biomathematics and Statistics Scotland

How do diverse vector life-history traits and transmission rates interact to affect BYDV infection in cereal crops?

10:00

Sophie-Leigh Claassen, University of Johannesburg

A review on ecology, alternative methods of control and distribution of the brown locust, *Locustana pardalina* Walker 1870

10:15

Jack Perry, Teagasc & Harper Adams University

Comparing aphid monitoring tools for BYDV, what we've learnt after year one

10:30

Carolyn Mitchell, James Hutton Institute

Getting to grips with a new pest: choosing crop varieties for blueberry aphid

10:45

Muhammad Saeed, University of Swabi

Assessment of antixenosis properties and toxicity of selected indigenous plant extracts against *Lasioderma serricornis* (Fab.)

11:00

Arthy Surendran, SRUC - Scotland's Rural College

Unseen threat in peat-free growing media: Sciarid flies

11:15

Simranjit Kaur, Teagasc, Crops Research Centre

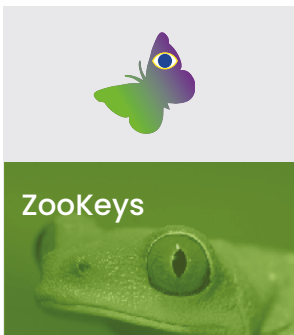
Exploring role of fungal endophytes for aphid management and host growth functions

11:30

Helen Hesketh, UK Centre for Ecology & Hydrology

Applying ecotoxicology principles to understand mixed stressor interactions to improve biocontrol of insect pests





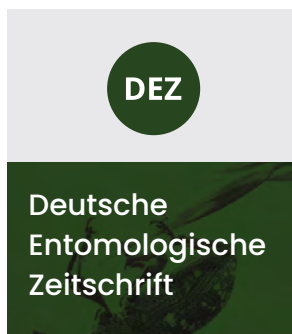
- **Impact Factor:** 1.3
- **Scopus CiteScore:** 2.7
- Covers taxonomy, phylogeny, biogeography and evolution of animals



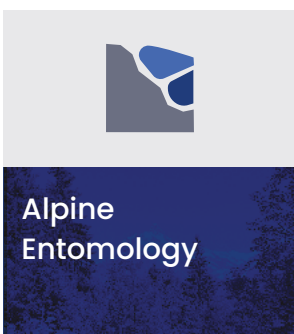
- **Impact Factor:** 1.0
- **Scopus CiteScore:** 2.2
- Covers systematics, inventories, phylogeny, evolution and biodiversity informatics, as well as publication of all types of biodiversity data



- **Impact Factor:** 0.7
- **Scopus CiteScore:** 1.7
- Covers systematics, evolution, ecology and behavior of Neotropical organisms



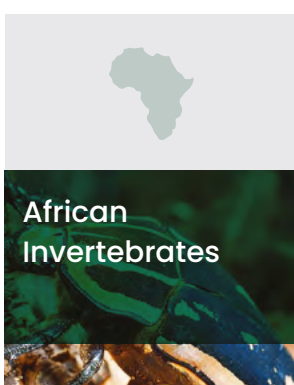
- **Impact Factor:** 1.3
- **Scopus CiteScore:** 1.6
- Covers insect systematics, taxonomy, phylogeny, morphology and biogeography
- Journal of the Museum of Natural History, Berlin



- **Impact Factor:** 0.4
- **Scopus CiteScore:** 1.3
- Covers research on insects from alpine and mountain regions
- Journal of the Swiss Entomological Society



- **Impact Factor:** 1.4
- **Scopus CiteScore:** 2.6
- Covers research on all aspects of Hymenoptera
- Journal of the International Society of Hymenopterists



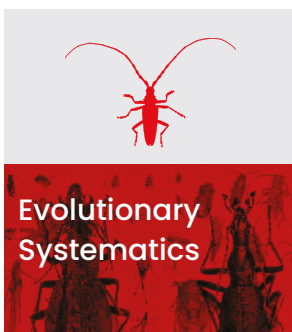
- **Impact Factor:** 0.8
- **Scopus CiteScore:** 1.0
- Covers taxonomy and biogeography of Afrotropical invertebrates
- Journal of the KwaZulu-Natal Museum, South Africa



- **Impact Factor:** 0.7
- **Scopus CiteScore:** 1.7
- Covers research on all aspects of Lepidoptera
- Journal of the Societas Europaea Lepidopterologica



- **Impact Factor:** 1.0
- **Scopus CiteScore:** 1.9
- Covers research on Orthoptera and allied orders
- Journal of the Orthopterists' Society



- **Scopus CiteScore:** 2.2
- Covers whole-organism biology, systematics and evolution
- Journal of the Leibniz Institute for the Analysis of Biodiversity Change



Poster presentations

All posters are displayed in the main Exhibition Hall (Mountford Hall), according to their poster number below. If you have a coloured dot on your poster, this indicates you entered yourself for the student poster prize.



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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 Ento24 hub using the QR code.

Behaviour and evolution

P1

Is a hemimetabolous insect a useful model for studying effects of high-sugar diet and tryptophan pathway mutation? House cricket, *A. domesticus* as an alternative to the fruit fly, *D. melanogaster*.

Marta Potrzebska, University of Silesia in Katowice

P2

Matthew Sparks, Swansea University

How do Urban flies view their environment?

P7

Conservation and diversity of woodland insects: connectivity benefits most taxa, but the benefits for individual species vary greatly.

Jane Hill, University of Yor

P8

How is carabid beetle abundance and community structure influenced by sustainable farming practice?

Gail Jackson, University of Edinburgh

P9

Optimising fly traps: Comparing the efficacy and efficiency of LED and fluorescent lamps

Fabio Leonel, Rentokil Initial

P10

How can post-industrial land restoration in the North-East contribute to Biodiversity Net Gain in England?

Rosie McCallum, Newcastle University

P11

Collecting the evidence and applying the science to further the conservation of *Phengaris arion* in the UK

Sarah Meredith, Royal Entomological Society

P12

The effects of physicochemical parameters of water on the abundance of *Anopheles* mosquito larvae in various breeding sites of Kapiri Mposhi district Zambia

Moses Musonda, University of Zambia

P13

If you go down to the woods today - the surprises and the routine of monitoring woodland insects at Forest Research

Anna Platoni, Forest Research

Conservation and diversity

P3

The role of spatial scale in structuring aquatic invertebrate assemblages and connectivity across peatland pools

Imogen Cockwell, Swansea University

P4

The comparison of three trapping methods and the effects of surrounding environmental variables for saproxylic and other woodland using beetles

Aoife Crowe, University of Galway, Ireland

P5

Tn investigation into the lichen host preference of Footman moth *Eilema* spp. larvae in urban green spaces in Liverpool.

Matthew Darbon, Liverpool Hope University

P6

Tully blocking restoration efforts increase invertebrate abundance and improve water quality in the Peak District

Elen Griffith, Manchester Metropolitan University



P14

Does biodiversity affect Olive fly population? Evidence from different understorey treatments

Giorgos Stavrianakis, University of the Aegean

P15

Digging Deeper: Exploring ants as beneficial ecosystem engineers

Daniel Turk, University of York

Genetics and genomics

P16

Identifying various aphid species from bulk insect samples using Mito-Metagenomics

Virgile Ballandras, Teagasc Crop Science Department, Maynooth University

P17

Using de novo transcriptome analysis to identify RNAi machinery in the spittlebug *Mahanarva spectabilis* Distant, 1909 (Hemiptera: Cercopidae)

Isabela Begnami, Universidade Estadual de Campinas

P18

Testing eDNA sampling methods to detect plant pests using the Light Brown Apple moth, *Epiphyas postvittana*

Stewart Rosell, Agri-Food and Biosciences Institute

Host microbiome interactions

P19

The microbiome of the honeybee hive as an indicator of hive health

Kerry Barnard, University of Surrey

P20

The role of protective symbionts in mediating aphid interactions with beneficial rhizobacteria and parasitoids on barley

Andrea Ceribelli, University of Liverpool

P21

A comparative study on infection routes of DCV across fruit fly species

Stephen Oware, University of Exeter

P22

A novel Soliniviridae that can infect black soldier flies (*Hermetia illucens*).

Robert D. Pienaar, CNRS/Université de Tours & Universitat de València

P23

The Dipteran microbiota as a reservoir of antimicrobial resistance in clinical settings across Africa

Shonnette Premchand-Branker, University of Oxford

Outreach

P24

EntoBites: Communicating Entomology

Stephanie Glendinning, University of Sheffield

P25

The strain on scientific publishing

Mark Hanson, University of Exeter Penryn

P26

Identifying trends in reporting on the ethical treatment of insects in research

Craig Perl, Insect Welfare Research Society

Pests, biological control and IPM

P27

Fungal-derived technology for control of the invasive pest, *Drosophila suzukii*

Frankie Amanesih, University of Greenwich

P28

Enhancing biological pest control: olfactory conditioning of parasitoid wasps

Nikoletta Foskolou, Harper Adams University

P29

Monitoring and detecting invasive species in anthrobiomes: bees on the Faroe Islands

Shannon Goldberg, Northumbria University

P30

Lethal and sub-lethal effects of naturally-derived pesticides on hoverflies

Laura Haynes, University of Greenwich

P31

Simulating the dynamics associated with insecticide resistance fitness costs in mosquitoes

Neil Hobbs, Swiss Tropical and Public Health Institute

P32

Gas Chromatography-Mass Spectroscopy analysis and Histopathological Effects of Methanolic Leaf Extract of *Lasianthera africana* P. Beauv. in the midgut of maize weevil, *Sitophilus zeamais* L.

Diligent Oboho, University of Uyo



P33

To me, to you – developing a push-pull system for sustainable management of aphid pests in seed and ware potato crops

John Owen, Harper Adams University

P34

The neurophysiological effect of deltamethrin in the nesting behaviour of *D. gazella* (Fabricius, 1787)

Nishi Pandya, The Maharaja Sayajirao University of Baroda

P35

A survey of *Bruchus rufimanus* incidence and damage in faba bean crops in Ireland

Antoine Pichon, Teagasc

P36

Trojan Female Technique for the biocontrol of the seed beetle *Acanthoscelides obtectus*: mitochondrial haplotype has negative male-specific effect on fertility across different nuclear backgrounds

Filip Vukajlović, University of Kragujevac

P37

The Forest Trapping Network 2023

Alice Walker, Forest Research

Pollinators

P38

Hoverfly use for pollination of commercial soft fruit

Safinatu Ameen, University of Greenwich

P39

A novel approach to non-invasive pollen sampling from Hymenoptera and Lepidoptera, providing insights into pollinator preferences in a restored wildflower meadow

Eiry Sian Bateman, University of South Wales

P40

The combined impact of poor nutrition and novel insecticides on bumblebee colony initiation

Elena Couper Coombs, University of Bristol

P41

Investigating colony growth dynamics in lab-reared wild and commercial lines of *Bombus terrestris* (ssp. *audax*)

Sarah J. Larragy, Trinity College Dublin

P42

Effects of riparian buffers on pollinator activity in oil palm plantations

Daniel Lim, University of Cambridge

P43

Winter-active parasitoids and pollinators: using a metabolomic approach to uncover potential resource competition between *Aphidius ervi* and *Bombus terrestris*

Daisy Scott, University of Bristol

P44

Assessing Scotland's Pollinator Strategy: Taking a "real-world" approach

Alice Walker, University of Edinburgh, SRUC

Taxonomy and diversity

P45

Ecology and first description of a new-to-science hidden-snout weevil (Cryptorhynchinae) found in Northern Ireland, *Xenosacalles irlandikos* Stüben, Clarke & Anderson 2024

Joshua Clarke, Independent

P46

A taxonomy study of the whitefly (Hemiptera: Aleyrodidae) from China

Jirui Wang, Zhejiang Agriculture & Forestry University

Vector borne diseases

P47

Surveillance of native and non-native ticks and tick-borne diseases at the Sovereign Base Areas of Cyprus

Katerina Athanasiou, Enalia Physis Environmental Research Center & Joint Services Health Unit, British Forces Cyprus

P48

The vector potential of insect pests *Musca domestica* and *Blattella germanica* in the dissemination of resistant and pathogenic bacteria in a resource-limited Nigerian hospital

Kate Cook, University of Oxford

P49

Assessing vector competence of West Nile virus in *Culex pipiens* mosquitoes

Sanam Sewgobind, Animal and Plant Health Agency



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 Ento24 hub using the QR code and contact presenters with any questions you about their research.



royensoc.co.uk/
ento24-online-posters

Understanding of the ecology and trophic interactions of Eleonora's Falcon (*Falco eleonora*) with flying insects at the Akrotiri peninsula in Cyprus

Ioanna Angelidou, Joint Services Health Unit & Enalia Physis Environmental Research Centre & Ionian University

Environmental education and raising awareness about pollinators and beneficial insects

Chara Apostolidou, Enalia Physis Environmental Research Centre & Laboratory of Vector Ecology and Applied Entomology, Joint Services Health Unit

Evaluation of a lepidopteran in vitro model of interactions between extracellular vesicles and viruses

Anton Bilsen, KU Leuven

Effect of carbamide-water-saccharose solution on honeybee in laboratory experiments: sublethal effects and concentration dependence of mortality rate

Magda Bohus, Hományi National Centre for Biodiversity and Gene Conservation

The "Ants of Cyprus" website: online resources on the ants of a biodiversity hotspot

Jakovos Demetriou, Laboratory of Vector Ecology and Applied Entomology, Joint Services Health & National and Kapodistrian University of Athens & Enalia Physis Environmental Research Centre

Comparative assessment of the in vitro insecticide degradation abilities of diverse gut bacteria associated with rice stem borer complex

Subrata Goswami, Banaras Hindu University

Braconid species complex (Hymenoptera: Braconidae) associated with plant galls from India

Ankita Gupta, ICAR-National Bureau of Agricultural Insect Resources

India a Biodiversity rich treasure: Moths classical example

Aparna Kalawate, Zoological Survey of India, Western Regional Centre

Fostering positive worldviews: An ecolinguistic study of the discursive representations of insects and arachnids in online media

Mario Leto, Meiji University

A new molecular phylogeny of Noctuoidea reveals robust family-level relationships

Jose I. Martinez, Florida Museum of Natural History, University of Florida

Reconstructing *sordida* subcomplex (Triatominae, Triatoma) phylogeny across species distribution range

Sebastián Pita, Universidad de la Republica

Quinoa insect pests: an exploratory survey and screening for resistance to its major insects

Dachena Romain Gracia, Mohammed VI Polytechnic University

Spatial and temporal variation in the community structure of insects and its relationship with vegetation and hydroperiod in a coastal wetland of the South American Pacific

Cristhian Rossi, Universidad Nacional Mayor de San Marcos

Buzz pollinator niche responses under climate change in India

Mamta Sharma, Banaras Hindu University

Emergence of niche space in rotting wood through fungal-insect interactions

Christian von Trotha Taylor, Open University

Hymenoptera: Diversity of the second most species-rich animal order in the Galapagos Islands

Maria C. Tocora, University of Toronto

Improving biodiversity in Central and Eastern European domestic gardens needs regionally scaled strategies

Zsófia Varga-Szilay, ELTE Eötvös Loránd University

Red is safer: influence of gall traits on parasitism in *Garuga pinnata* Roxb

Bobika VK, University of Calicut



Delegate information: Ento24 online hub

Full delegate information, abstracts, online posters and presenter guidelines can be found on the Ento24 online hub. 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.



royensoc.co.uk/
ento24-hub

WiFi

Free WiFi is accessible throughout the venue. On registration you will be provided with a unique password to login. If you use eduroam, this is also available at the venue.

Social media

We encourage all delegates to share their experience and join the discussion on social media using #Ento24.

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 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 on the ground floor and 1st Floor of HUB502 and behind the stage of the main Exhibition Hall (Mountford Hall).

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 Study Room 6. 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 both the Guild of Students and HUB502 buildings.

Smoking policy

Smoking is not permitted on the University of Liverpool 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 University Square.

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

Liverpool city centre is fairly compact, so most areas are walkable. If you are travelling from the conference venue to Liverpool ONE shopping centre, the Royal Albert Dock, or the Balti Triangle, take the 79 Arriva bus from the Mount Pleasant



bus stop on Brownlow Hill and get off at Liverpool ONE, which takes approximately 7 minutes. From Liverpool ONE you can walk to both Royal Albert Dock and the Balti Triangle in about 10 minutes. For buses in the region, you can use your credit or debit card or Google Pay or Apple Pay when you board the bus.

Liverpool has four main train stations that serve the four key areas of the city centre. These areas are Lime Street, James Street, Liverpool Central and Moorfields. Operated by Merseyrail, each of these stations links the city centre with all other areas in the Merseyside area. Services run every 15 minutes from all regional stations into the city.

To view all local travel options, you can download Citymapper and select North West and Yorkshire or use Googlemaps.

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

- **Alpha Taxis 0151 722 8888**
- **Delta Taxis: 0151 9247373**
- **Village Taxis: 0151 427 7909**

Nearest shop

There is a Tesco Express and Ryman's Stationary for any general items a 2-minute walk from the venue on Brownlow Hill. Walk over the paved area of University Square and head down Brownlow Hill. A selection of shops is on your left.

Cafés near the venue

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, there are the following options nearby:

- **Costa Coffee:** Walk over the paved area of University Square and head down Brownlow Hill. A selection of shops is on your left, including a Costa Coffee, open from 07:30 – 16:00.
- **The Waterhouse Café:** Located in the Victoria Gallery & Museum, just over the road from the Guild of Students, with a great selection of food and drink in a beautiful setting. Note this will

only be open on the Tuesday and Wednesday of the conference and from 09:00 – 16:00.

- **Starbucks Coffee:** There is due to be a new Starbucks opening just in time for Ento24 at the entrance of the Guild of Students for any extra coffee needs, fingers crossed!
- **LAND/Miles Coffee:** Land (newly named Miles) is an independent, speciality coffee shop in Liverpool Science Park, with highly rated coffee. Head left out of the venue down Mount Pleasant and follow the road right to the Liverpool Science Park. Open from 08:00 – 15:00.

Neighbourhoods of Liverpool

- **The Baltic Triangle:** The Baltic Triangle is one of Liverpool's most creative neighbourhoods, where old warehouses and factories have been repurposed into artistic venues. Many workspaces are found here, along with trendy breweries, restaurants, live music and lots of street art.
- **The Liverpool Docks:** This includes the Royal Albert Docks and is the centre of tourism in Liverpool. There's a collection of bars, restaurants, museums and hotels, all built within former warehouses, with the greatest concentration of Grade I Listed architecture anywhere in the UK.
- **Ropewalks:** Ropewalks is where you'll find Liverpool's independent shops, bars and restaurants, along Hanover Street, Duke Street, Bold Street and Argyle Street. The name Ropewalks refers to the design of the streets in the area, which are long and straight so that the ropemakers in the area could lay out the ropes being made for the nearby docks.
- **Liverpool City Centre:** Liverpool City Centre stretches from the River Mersey to the city's main train stations, Liverpool Lime Street and Liverpool Central. This is the central commercial area, including the Liverpool ONE shopping mall and a selection of cafés, bars and restaurants.
- **The Pride Quarter:** Liverpool City Region is proud to be a friendly, inclusive place to visit. From the bustling Pride Quarter in the City Centre to the many LGBTQ+ events that take place each year. The Pride Quarter encompasses Stanley Street and surrounding areas. Eberle Street is also a key area in the LGBTQ+ scene.



Places to eat and drink

Have you heard of Liverpool's local dish – scouse? It's a tasty stew of meat and vegetables, served with crusty bread and beetroot or red cabbage, and how the people of Liverpool got their nickname 'Scousers'. It's on the menu of many restaurants and pubs and there are lots of vegetarian and vegan versions available too!

- **The Grapes:** One of the most famous pubs in Liverpool, widely renowned for its Beatles connection. Close to the Cavern Club on Mathew Street.
- **The Vines:** Known to everyone locally as 'The Big House' this is another of Liverpool's oldest and most famous pubs with a beautiful interior. Found on Lime Street.
- **Thomas Rigby's:** One of Liverpool's oldest pubs located in the heart of the city, bearing the name of wine and spirit dealer Thomas Rigby. Found on Dale Street.
- **Ship and Mitre:** The largest selection of hand-pulled ales in Merseyside – not forgetting the range of around 200 beers! Found on Dale Street.
- **Cains Brewery:** In the Baltic Triangle where you can enjoy a drink within the walls of the original site where Robert Cain brewed the famous ale back in 1858.
- **Black Lodge:** Brewery in the Baltic Triangle, visit the taproom on Kings Dock Street to try their latest beers on keg and cask plus food from resident traders.
- **The Egg Café:** Classic homemade vegetarian and vegan menu of soups, salads, burgers and cakes in a laid-back bohemian-style loft in a listed building off Bold Street.
- **Leaf:** A collection of independent tearooms, restaurants and events spaces, with locations on Bold Street, Smithdown Road and in West Kirby.
- **The Vibe Café:** Serving 100% plant-based food with a great breakfast and lunch, plus fair-trade coffee & smoothies. Located off Hanover Street near Liverpool ONE.
- **Mowgli:** Indian street food restaurant with two locations in the city and vegetarian and vegan options. Find on Bold Street and Water Street.
- **Lunya:** Catalan inspired deli, bar and restaurant in Liverpool ONE.

- **Lunyalita:** Find Lunya's little sister in the Albert Docks serving a delicious variety of classic and modern tapas.
- **Duke Street Market:** Duke Street Food and Drink Market has a whole host of independent food traders each with different cuisines.
- **Baltic Market:** Liverpool's first street food market. A food hall and entertainment venue based in a disused warehouse in the Baltic Triangle.
- **Kai Bai Bo:** Bringing flavours of the Korean peninsula, including a great ramen! Located on Slater Street in Ropewalks. Kai Bai Bo is the Korean game of Rock, Paper, Scissors.
- **Sanskriti:** Vegan and vegetarian Indian restaurant on Bixteth Street.
- **Hafila Hafila:** Middle-Eastern-inspired street food located on Lark Lane.

Things to do locally

Take a stroll: Liverpool city centre is compact and walkable, and you can walk from one end of the city to the other in 30 minutes. So, if you can, have a wander to take in the key sites.

- **The Beatles:** You can't come to Liverpool without mentioning The Beatles. There's lots of places to visit about the iconic band including: The Beatles Story on the Royal Albert Dock (the largest Beatles exhibition), Liverpool Beatles Museum on Mathew Street (visitors can explore over 300 pieces of genuine Beatles memorabilia), The Cavern Quarter (with the famous basement club a few steps away), and finally jump on the Magical Mystery Tour (a two-hour bus tour extravaganza ticking off many Beatles landmarks like Penny Lane and Strawberry Field).
- **Museums:** There is a wealth of museums to visit throughout Liverpool including: Merseyside Maritime Museum (exploring maritime history through the ages), Museum of Liverpool (telling the story of Liverpool and its people), Tate Liverpool (currently located in RIBA North, Mann Island), Bluecoat Arts Centre (a contemporary arts centre with a programme of exhibitions, events and craft retailers), Walker Art Gallery (one of the most important and renowned painting collections in the UK) and the World Museum (extensive collections covering archaeology, ethnology and the natural and physical sciences).



- **Bees: A Story of Survival:** During Ento24 the World Museum will be exhibiting an immersive exhibition that brings together art and science to the world of bees. Adult tickets are £12.
- **St Luke's 'Bombed Out' Church:** On Leece Street, the church suffered catastrophic damage during the May Blitz of 1941, leaving only its external masonry standing. The site lay derelict for over 60 years, before being cleared and transformed by a series of cultural events and reopened as an iconic arts venue and community space for the public.
- **Liverpool Cathedral:** Liverpool Cathedral is the largest cathedral in Britain and the 5th largest in the world.
- **Liverpool Metropolitan Cathedral:** Britain's largest Catholic cathedral, with dramatic architecture and design and located right next to the conference centre.
- **Royal Liver Building:** Opened in 1911 as the headquarters to the Royal Liver Group, the mythical Liver Birds tower over the waterfront. For the first time in its 100+ year history, Royal Liver Building is now accessible to the public. Tickets are £16 for adults.
- **Mersey Ferry:** One of Liverpool's most iconic sights is the 'ferry across the Mersey'. A Mersey Ferry will take you on a 50-minute journey that lets you explore the River Mersey's rich past.
- **Sefton Park:** Classified as a Grade One listed park by English Heritage, the magnificent 200-acre Park looks like a natural landscape rather than a man-made park. Accessible by Bus: 75 from Lime Street.

Code of conduct

Our Ento24 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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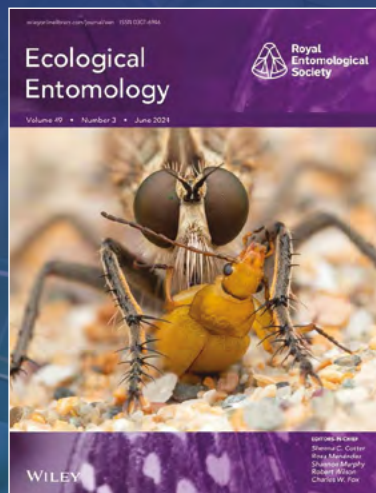
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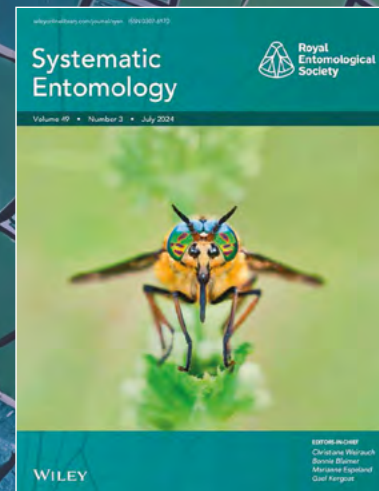


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