LIGHT POLLUTION AS A DRIVER OF INSECT DECLINES

12-14th May 2025 – University of Exeter's Penryn campus, Cornwall, UK

Attendee List

Victoria Elizabeth Amaral

The University of Hong-Kong

I am a final-year PhD candidate at the University of Hong Kong, studying community ecology and insect declines. My research considers the unique ways that nocturnal species will navigate modern ecosystem changes, with a focus on moths.

Jon Bennie

University of Exeter, UK

I'm an Associate Professor at the Centre for Geography and Environmental Science, at the University of Exeter. I'm a conservation ecologist and biogeographer who works on the ecological effects of environmental change, with particular interests in the ecological effects of light pollution.

Janine Bollinger (virtual)

WSL, Swiss Federal Research Institute for Forest, Snow and Landscape Research, Switzerland,

Academia, senior scientist, team leader, lecturer

Aurélien Boulez (virtual)

University of Helsinki, Finland

PhD student working on the impact of artificial light at night on glow-worms behaviour. I'm interested in insect conservation and I want to play a role in mitigating the impact of humans on insects.

Emmanuelle Briolat

University of Exeter, UK

I am a postdoctoral researcher investigating the impacts of different types of artificial lights on the behaviour of nocturnal moths. My background in visual ecology, primarily in the study of anti-predator defences, from warning coloration to camouflage. I am especially interested in how artificial lighting affects the interactions between insects, plants and predators, as well as in community engagement for conservation.

Jiaqing Cai

University of Exeter, UK

I am a 3rd year PhD student working with Prof. Kevin Gaston and Dr. Jon Bennie on the impacts of artificial light at night (ALAN) on ecosystem functioning. I am currently using earthworms as study species to investigate how ALAN influences their behavior, predator-prey dynamics, and associated ecosystem functions. Broadly, my research focuses on various aspects of ALAN, with a particular interest in its impacts on the interactions between earthworms, plants, and other organisms—including competitors and predators—across diverse environments such as terrestrial, freshwater, and marine ecosystems.

Elliott Cornelius

Rothamsted Research, UK

I am a PhD student studying the visual ecology of moths with the aim of understanding how this relates to their flight to light response. Through this, I hope to be able to make predictions about the attractiveness of bulbs, both for mitigating the impact of light pollution on nocturnal insects and for developing our understanding of moth recording and monitoring methods.

Mia Croft

Newcastle University, UK

A first-year PhD student with One Planet DTP, I'm investigating the impacts of ALAN on optimal foraging, trophic networks and ecosystem services through macronutrient analysis, dietary metabarcoding, floral eDNA and constructed networks. I'm a member of the Foraging Ecology and Network Ecology research groups at Newcastle University, where my supervisors are Dr Jordan Cuff and Professor Darren Evans. I'm also a member of the Ecology, Conservation and Society research group at Northumbria University, my supervisor is Dr Katherine Baldock. Key research interests include fundamental ecological theory, community entomology, and the application of cutting-edge research methodologies such as molecular techniques.

Raphaël De Cock (virtual)

University of Antwerp & Vrije Universiteit Brussel, Belgium

I am an experts on glow-worms and fireflies (Coleoptera, Lampyridae) and involved in studies on the effects of artificial light at night on these organisms.

Jacqueline Degen

University of Würzburg, Germany

I am a research group leader at the University of Würzburg, investigating the flight behavior of moths under natural conditions and in the presence of artificial light. I am particularly interested in the moon's role as a natural celestial cue for orientation and the extent to which light pollution interferes. Using field and laboratory experiments, I aim to understand the mechanisms underlying their susceptibility to artificial light and contribute to the development of insect-friendly lighting technologies.

Tobias Degen (virtual)

University of Würzburg, Germany

John Deitsch

The University of Texas at El Paso, USA

I am in the second year of an Ecology and Evolutionary Biology PhD at The University of Texas at El Paso. My research is focused on understanding how artificial light pollution influences insect behavior and

communities. I am particularly interested in the interaction of light pollution with other factors like habitat type or the lunar cycle. I will happily study a variety of insects, and even vertebrates, but moths do seem to have a way of being the most practical focal taxa for many of the research questions I like to explore.

Manuel Dietenberger

Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB), Germany

I hold a PhD position and my research regarding light pollution focuses primarily on the attraction effect for nocturnal insects, mitigation strategies und implications for Nature Conservation. Beyond effects on the individual level I am highly interested in community effects of ALAN and the relation to specific light parameters.

Davide Dominoni (virtual)

University of Glasgow, UK

I am an urban ecologist interested in the effects of light pollution on animals. My core study system is birds but I have recently expanded into insects (crickets and moths) and effects on the interaction of birds and insects.

Toby Doyle

University of Exeter, UK

Research assistant – insect migration

Darren Evans

Newcastle University, UK

Professor of ecology and conservation. Decade of research on impacts of street lights on biodiversity, showing first direct link on local insect populations.

Madeleine Fabusova

Newcastle University, UK

I am a PhD researcher at Newcastle University, looking at how we can mitigate the impacts of light pollution on biodiversity, primarily focusing on moths. My work involves testing the impacts of different light mitigating measures on Lepidoptera networks, researching the impacts across a life cycle.

Federico Ferrari

WSL Birmensdorf, Switzerland

I am a first-year PhD student at WSL in Zürich. My research focuses on the impacts of ALAN on ecosystem functioning, particularly the role of nocturnal pollinators and decomposers and how they respond to different streetlight properties.

James Foster

University of Konstanz, Germany

Junior PI. My research focusses on sensory ecology: how animals' natural environments are interpreted by their sensory systems. My work on light pollution combines behavioural experiments with environmental imaging and ocular modelling, to figure out how responses to light pollution are driven by visual information.

Richard Fox

Butterfly Conservation, UK

I am Head of Science at UK charity Butterfly Conservation. For more than 25 years, I've led Butterfly Conservation's citizen science recording schemes, engaging hundreds of thousands of participants and gathering some of the most comprehensive insect datasets in the world. I've been involved in many research

collaborations, using these datasets to understand the impacts of drivers such as climate change, land use and pollution (including artificial light at night) on Lepidoptera populations.

Jim Alexander McLaren Galloway

University of Exeter, UK

Postdoctoral Research Fellow at the University of Exeter's Penryn Campus - I'm working on a grant with Professor Kevin J Gaston and Dr Jolyon Troscianko investigating the spread of headlight emissions over the last decade, and their effects on nocturnal insect vision and behaviour, using a combination of physiological measurements and behavioural observations to understand the impact of headlight emissions on insect species vision, and modelling headlight spectra and ground-based field measurements to quantify the variation of light pollution from headlights across the UK.

Kevin J. Gaston

University of Exeter, UK

Vincent Grognuz

Agriculture and Biodiversity, Agroscope, Switzerland

I am a PhD student from Switzerland (supervised by PD Eva Knop). I work on the effects of ALAN on diurnal plant-pollinator interactions.

Marielle Hansel Friedman

University of California Davis, USA

I am a 3rd year PhD student in the Meineke lab in the Department of Entomology & Nematology at the University of California, Davis (USA). My research examines how artificial light at night (ALAN) affects insect abundance, diversity, and richness as well as plant-insect herbivore interactions on ecologically important plant species in northern California. I'm particularly interested in exploring how ALAN's effects on herbivores may vary depending on where they live and feed, and how these effects interact with other anthropogenic factors in urban environments.

Will Leo Hawkes

University of Exeter & BugLife, UK

I am the Conservation Assistant for Buglife's Kernow Wyls project, aiming to protect rare insects across Cornwall. I am also a Doctor of Insect Migration and so my interests align with this: protecting, learning about, and telling everyone the wonders of insect life.

Kyle Haynes

University of Virginia, USA

Kyle Haynes is a Research Professor at the University of Virginia. He explores processes driving fluctuations in population abundance across time and space. Kyle is particularly interested in factors that operate over broad spatial scales and/or are the result of human activities. One branch of his research is investigating the impacts of light pollution on insect populations and trophic interactions between insects, plants, and other arthropods.

Robin Heinen

Terrestrial Ecology Research Group - TUM School of Life Sciences - Technical University of Munich, Germany

Research Associate working on plant-insect interactions under global change, including light pollution.

Ben Hewlett

National Highways, UK

Senior Biodiversity Advisor for National Highways, responsible for biodiversity design, environmental data and the National Highways Soft Estate.

Franz Hölker

Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB), Germany

Since 2009, Franz Hölker has been studying the effects of artificial light at night on a wide range of biological processes, from gene expression to land-water interactions and ecosystem functions. He is head of Head of Research Group “Light Pollution and Ecophysiology” at Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB, Berlin, Germany), speaker of the IGB programme area “Biodiversity in a Changing World”, and Work Package leader within the Horizon Europe-funded project “Aquatic Pollution from Light and Noise (AquaPLAN)”.

Maisy Inston

Keele University, UK

I am a Leverhulme Doctoral Scholar based at Keele University, working as part of the Sustainable Rural Futures (SURF) programme. My research focuses on the more-than-human interactions surrounding the use of artificial light at night (ALAN). Specifically, how human culture plays a part in shaping our use of ALAN, and how our relationships with other species does, or does not, influence this. Previously I have also studied how ALAN has impacted the landscape ecology of bats, moths and hedgehogs, as well as how aesthetic appeal influences our opinions towards species.

Eva Jimenez-Guri

University of Exeter, UK

Therésa Jones

University of Melbourne, Australia

I am a Professor in evolutionary and behavioural ecology and leader of the Urban Light Lab at the University of Melbourne. My research explores the causes and consequences of variability in mating systems and life history traits, the role of chemical cues, and most recently the ecological impact of artificial night lighting (from individual fitness through to population and community structure). My research has translational real-world impact. I have contributed to the 2022/3 Federal and Victorian State of the Environment reports and led the development of an industry toolkit for understanding wildlife sensitive lighting which has been distributed to more than 500 local councils in Australia.

Ramesh Kathariyaa (virtual)

International Centre for Integrated Mountain Development, Nepal

Academia.

Darren Kelly

Devon County Council, ILP, IHE, UK

Street lighting manager for Devon County Council, with an interest in the latest research regarding the interaction and effects of lighting on the surrounding environment/ecology and where or if I can capture this in the commercial industry.

Linnea Kivelä (virtual)

University of Helsinki, Finland

Doctoral researcher studying the effects of light pollution on glow-worm reproductive behavior.

Niels Koolstra

Devon County Council, UK

Street Lighting Engineer for Devon County Council. We keenly follow research and industry development so we can review how our road lighting strategies can efficiently be implemented, providing the right balance between a safer highway but minimising impact on its surroundings.

Keren Levy (virtual)

Tel Aviv University, Israel

Keren Levy completed a one-year postdoctoral fellowship at Tel Aviv University, where she studied the effect of artificial light at night on intraspecific communication in a cricket. In her PhD at Tel Aviv University and the Open University of Israel, she investigated the effects of artificial light at night on cricket behavior. Her M.Sc. work at Ben-Gurion University concerned pattern recognition-based mate choice. Her B.Sc. was at the University of Basel. Her primary research interest is sensory biology and specifically insect behavioural ecology. Nowadays she is searching for a postdoctoral position while working as an environmental consultant for the ministry.

Ruonan Li (virtual)

University of Exeter, UK

I'm a third year PhD student, my research interests are animal behaviour and evolution, prey-predator interactions, ALAN influence on insects behaviours and adaptation.

Carlos Linares

Boise State University, USA

PhD student

Scott Martin

BugLife, UK

Rochelle Meah

University of Bristol, UK

I am a postdoctoral researcher in academia. My research interests focus on the multiple, synergistic effects of light pollution on the movement ecology of nocturnal arthropods.

Thomas Merckx

Vrije Universiteit Brussel, Belgium

I lead a research group focusing on urban evolutionary ecology and global change biology, using insects such as moths and beetles as models at species and community level. In collaboration with various experts, we investigate to what degree insects cope with global change stressors such as light pollution. Through experimental lab and fieldwork, and topped-up with citizen-science data, we examine behavioral, morphological and community changes. Our goal is to provide evidence-based recommendations to mitigate impacts of light pollution, urbanization and global change, fostering wilder ecosystems with richer insect communities that provide enhanced ecosystem services.

Musa Mlambo (virtual)

Albany Museum, South Africa

Academia

Sam Morrell

University of Exeter, UK

Currently in academia, working with Prof Kevin Gaston on measurement and modelling techniques for better understanding the ecological issues around light pollution.

Oliver (Bryanna) Neria

The University of Texas at El Paso, USA

I am a PhD student in the Ecology and Evolutionary Biology program at the University of Texas at El Paso. My research interests involve interactions between insect communities and nocturnal flowers, and the potential changes occurring in these intricate relationships under anthropogenic light sources.

Dan-Eric Nilsson (virtual)

Dept. of Biology, Lund University, Sweden

University professor. Visual cues involved in behavioural choice.

Reuben O'Connell Booth

University of Leeds, UK

MSc by research student at the University of Leeds, interested in insect monitoring, radar and conservation impact assessment.

Avalon Owens

Rowland Institute at Harvard, USA

I am a group leader at the Rowland Institute at Harvard, where my lab (owenslab.org) studies the ecological costs and evolutionary consequences of light pollution for insects, mostly moths. Having recently shown that blacklight traps have become much less effective at capturing moths over the past decade, we are now investigating whether that might be due to light competition or rapid evolution. We are also beginning to explore how light pollution might affect nocturnal pollination of economic crops. I received my Ph.D. in Biology from Tufts University in 2022, where I studied how light pollution affects firefly courtship and reproduction.

Michael Pocock (virtual)

UK Centre for Ecology & Hydrology

Michael Pocock is a senior researcher at UK Centre for Ecology & Hydrology and interested in the interactions of people-nature-data, including citizen science for environmental monitoring and research. He has worked on the impacts of light pollution for a decade, focusing on moths (adults and larvae) and role in ecosystems.

Oliver Poole

University of Exeter, UK

Academia - researching migratory insect muscle physiology and genetics

Charlie Rayner

University of Exeter, UK

Research technician

Bethany Roberts

Cornwall Council, UK

I am a Senior Environment Officer in the Nature Recovery team at Cornwall Council. Over the past 18 months I have been developing the Cornwall and Isles of Scilly Nature Recovery Strategy. This includes interactive Nature Recovery Network maps co-produced with the University of Exeter. I have a background in bumblebee ecology, and am generally interested in invertebrate conservation.

Nicholas Roberts

University of Bristol, UK

Emma Rosenfeld

Cornwall Wildlife Trust & ERCCIS, UK

Local Environmental Record Centre Manager and Cornwall Wildlife Trust evidence and spatial lead. I work in conservation and focus on species and habitat data management, evidence, and mapping. I have a background in academia with research in urban ecology including ALAN.

Indra Saenen

Vrije Universiteit Brussel, Belgium, UK

I'm a PhD student and teaching assistant at the University of Brussels (VUB), specializing in the field of urban ecology within the WILD research group. My research focuses on the effects of artificial light at night (ALAN) on nocturnal insect species and communities within Europe. The impact of ALAN is assessed both directly (e.g. LED lighting) and indirectly (sky glow) for wood-dependent beetles - typically associated to old forest - and behavioural responses of the European firefly *Lamprohiza splendidula*.

Brett Seymoure

The University of Texas at El Paso, USA

I am an assistant professor of Biological Sciences who studies the importance of natural and artificial light cycles on animal behavior and visual systems, especially focused on terrestrial arthropods and predator-prey interactions.

David Smith

BugLife, UK

Advocacy and Social Change Manager. David is an award-winning campaigner and environmental advocate. He has worked on multiple policy issues including plastic pollution, water quality, land use change and species recovery. David leads Buglife's advocacy and policy programme to help save the small things that run the planet. As part of their policy priorities, Buglife is working to ensure that light pollution is recognised as an environmental pollutant with legally binding targets to reduce levels and relieve the pressure light pollution puts on the natural world.

Anna Stöckl

University of Konstanz, Germany

academia, group leader: vision, sensory-motor control, insects

Mona Storms (virtual)

University of Würzburg, Germany

I am a PhD student at the Biocenter of the University of Würzburg, currently researching the influence of artificial light at night on male moth flight behaviour, specifically focusing on Sphinx ligustri. My dissertation about the attraction of spectral properties of artificial light sources, combines field experiments and flight simulators to explore how different light sources affect moths flight behaviour. With a passion for insects, ecology, and behaviour, my research aims to illuminate the hidden impacts of artificial lighting on nocturnal species, contributing to a broader understanding of biodiversity conservation in the age of urbanization and light pollution.

Nao Szulc

University of Exeter, UK

I’m an MSci Marine Biology student, finishing off my final year with my dissertation project on the effect of ALAN on marine isopods. Throughout my degree, I have developed an interest in sensory ecology and animal behaviour, and I hope to continue a career in research and academia in these fields.

Qian Tang

Rowland Institute at Harvard, USA

I'm postdoc research associate working on a project to investigate the nocturnal insects' eco-evolutionary responses to artificial light at night. I'm interested in board research topics that uses quantitative ecological and evolutionary methods to impact of anthropogenic environmental stressors to living organisms.

Tom Tregenza

University of Exeter, UK

I am an academic working on a range of questions in evolutionary ecology, mainly using my WildCrickets field system. WildCrickets is a meadow in N. Spain where we can individually tag and DNA sample every adult field cricket in the population and monitor every detail of their adult lives using a network of 140 day/night video cameras. With my PhD student Ruonan Li and Davide Dominoni (University of Glasgow), we are currently conducting an experiment in which we are artificially lighting half of the burrows at night, and examining effects on individual behaviour, predation risk, mating success, lifespan and so-on.

Jolyon Troscianko

University of Exeter, UK

My lab investigates how visual information affects the ecology, behaviour, survival and conservation of a wide range of species. Examples include the influence of light spectrum on moth behaviour, the function of animal patterns for camouflage or motion confusion, or the interactions between light environment, habitat structure and survival. Our work ranges from computational modelling and simulations to field experiments, elucidating the mechanisms and associated evolutionary drivers of visual signals, or contributing to evidence-based recommendations for preserving biodiversity. I also enjoy developing open-source methods for modelling animal vision, and novel equipment for measuring visual information.

Makrina Tsinoglou (virtual)

University of Würzburg, Germany

I am a PhD student and my main research interest focuses on behavioral ecology of nocturnal pollinators and on the effect of artificial light at night (ALAN) on the behavior of moths. Light pollution is a recent and dynamic threat to insect biodiversity and abundance as nocturnal pollinators are using the natural celestial cues of the night sky for their orientation. The goal of my project is to understand the effect of natural and artificial light at night on the flight behavior of moths (*Sphinx ligustri* and *Deilephila elpenor*) using field and laboratory experiments. A major focus is dedicated to unveiling the interplay between streetlight height and intensity on attraction of moths and the impact of streetlights in pristine landscapes, which is highly important for applying insect conservation strategies.

Menno van Berkel

University of Exeter, UK

I am a long-standing member of the Exeter Visual Ecology group. I have joined for my PhD with Laura Kelley, studying the construction- and effects of the visual illusions employed by great bowerbirds. I am now working as a research technician with Jolyon Troscianko, investigating the effects of ALAN on moths. Previous scientific work includes studying the cooperation of jackdaws in their nest construction, the weight regulation of starlings in winter, and the social structure of macaques under different levels of human conflict. Looking ahead, I aim to study the conflict between humans and wildlife in particular.

Mira Van de Broeck (virtual)

University of Antwerp, Belgium

PhD student

Evert van de Schoot (virtual)

UCLouvain, Belgium

I am a 27-year-old PhD student at the University of Louvain-la-Neuve (Belgium). In 10 years, my passion for moths has developed from catching them in my own garden to doing eco-evolutionary research in which moths serve as my study system to address eco-evolutionary and conservation-related issues. So, my dream of turning my hobby into my job has come true and now I investigate the effects of artificial light sources on moths, both in field studies and experiments in our lab.

Nicola van Koppenhagen

Swiss Federal Research Institute WSL, Switzerland

PhD candidate; light pollution, entomology, ecology

Pushkar Wagh (virtual)

Smithsonian Tropical Research Institute, Panama

I am a research intern at the Smithsonian Tropical Research Institute and a recent Master's graduate from India. My research interests span thermal and visual ecology, focusing on structural colouration and organismal adaptation to environmental change. My master’s work examined the thermal ecology of the Asian common toad in the context of urbanization. Currently, I am investigating the role of butterfly wings as heat absorption organs, particularly the thermal properties of iridescent wings, and exploring how heat stress affects the nanostructure architecture of structurally coloured wings.

Karl Wotton

University of Exeter, UK