# UKNEE | UK Network for Environmental Economists

# envecon 2024

Applied Environmental Economics Conference

Friday, March 8, 2024

# Joining Online

*Each session will be watchable through a Zoom Webinar.*

**You can join each sesssion by clicking the session headings below:**

| Time (GMT) | Session |
|---|---|
| 09:30 - 11:00 | [Keynote and Session 1: Influencing Behaviours Through Policy](#) |
| 11:20 - 12:40 | [Session 2: Distributional Impacts of Policy](#) |
| 13:40 - 14:40 | [Session 3: Multidisciplinary Perspectives for a Sustainable Marine Environment](#) |
| 14:40 - 15:40 | [Session 4: Financing Nature and Climate Solutions](#) |
| 16:00 - 17:20 | [Session 5: Changes and Challenges for Policy and Investment](#) |

## Asking Questions

- Online questions can be asked on **Slido**
- **Click here** or scan the QR code
- Or go to slido.com and enter code **U08324**
- Selected questions will be asked in-person by our Slido moderators

# Our Partners

*We are grateful to the following organisations for supporting UKNEE and envecon 2024:*

**Economics for the Environment Consultancy (eftec)**

eftec is the UK's first specialist environmental economics consultancy working on economic (e)valuation, appraisal, chemicals policy and natural capital accounting.

**European Association of Environmental and Resource Economists (EAERE)**

EAERE aims to contribute to the development and application of environmental, climate, and resource economics by encouraging multi-stakeholder collaboration.

**Centre for Social and Economic Research on the Global Environment (CSERGE)**

CSERGE is a leading interdisciplinary research centre in the field of sustainable development and decision making. Established in 1991, it has pioneered research at the intersection of science, economics and policy analysis related to water and marine resources, ecosystem services, natural and social capital for national and international research programs and institutions.

**Pyramids of Life**

Pyramids of Life is a unique UK Fisheries project funded by the Sustainable Management of Maine Resources (UKRI) programme. The project provides a multidisciplinary approach to elaborate and communicate complex relationships between different species, human behaviours, and marine ecosystem functions.

# Our Partners

*We are grateful to the following organisations for supporting UKNEE and envecon 2024:*

## Dragon Capital & LEEP Institute

The Dragon Capital Chair in Biodiversity Economics is a 5-year program (2020-2025) homed in the LEEP Institute, Department of Economics, the University of Exeter Business School. Professor Ben Groom holds this post, which is generously funded in collaboration with Dragon Capital, an investment manager based in Vietnam and focused on Frontier Asia.

## Chartered Institution of Water and Environmental Management (CIWEM)

CIWEM are the leading Royal Chartered professional body dedicated to sustainable management of the environment, globally.

CIWEM assisted UKNEE to achieve CPD Accreditation for envecon 2024. They host a regular online environmental economics course, with its next iteration starting on 16th April 2024.

## Also exhibiting at envecon

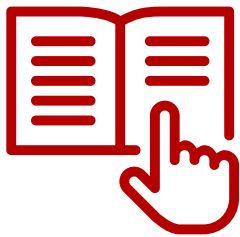## Ecosystems Knowledge Network

EKN is a network of over 3,000 people and organisations that lead the way in advancing the stewardship of land, water and nature throughout England, Scotland, Wales and Northern Ireland.
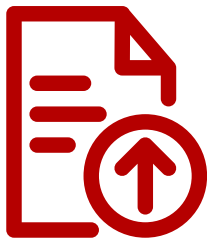
# UKNEE Membership

### Watch
- All UKNEE Recordings in one place:
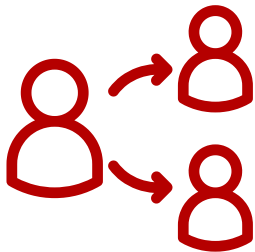- all envecon sessions since 2021
- all UKNEE webinars since 2020

### Read
- One year's subscription to the Journal of Environmental Economics and Policy (JEEP)*
- Monthly UKNEE newsletters

### Share
- Include your news in the UKNEE newsletter
- Upload your event, job, publication, or course to the UKNEE site

### Connect
- Through the member's directory
- Through news and regular webinars

**How to Join:**
- Click this link or scan the QR code
- Choose between 'Full Membership' or 'Student Membership' (student email addresses only)
- Enjoy a year of UKNEE membership!

\* JEEP subscription not included with student membership

Most member benefits will be immediately accessible, but appearance on the members' directory and access to JEEP will require processing. We will aim to complete this within two weeks.

# Scientific Committee

*UKNEE's activities, including this conference, would not be possible without the guidance and scrutiny of our Scientific Committee.*

*We are thankful to all the following members of this year's committee:*

**Dr Paolo Agnolucci**
*Senior Lecturer, Bartlett School of Environment, Energy, & Resources, University College London*

**Professor Ian Bateman OBE**
*Professor of Environmental Economics, University of Exeter; Director of the Land, Environment, Economics, and Policy Institute (LEEP); Director of NetZeroPlus*

**Dr Diane Burgess**
*Principle Agricultural Economist, Agri-food and Biosciences Institute Northern Ireland (AFBINI)*

**Professor Mike Christie**
*Professor of Environmental and Ecological Economics, Aberystwyth University Business School*

**Dr Eugenie Dugoua**
*Assistant Professor in Environmental Economics, London School of Economics and Political Science (LSE)*

**Dr Marian Dumas**
*Assistant Professorial Research Fellow, Grantham Research Institute, London School of Economics and Political Science (LSE)*

**Dr Silvia Ferrini**
*Senior Research Fellow University of East Anglia and the Centre for Social and Economic Research on the Global Environment (CSERGE)*

**Professor Ben Groom**
*Dragon Capital Chair in Biodiversity Economics, University of Exeter*

**Professor Nicholas Hanley**
*Chair in Environmental and One Health Economics, University of Glasgow*

**Dr Yiannis Kountouris**
*Lecturer in Economics and the Environment, Centre for Environmental Policy, Imperial College London*

**Ece Özdemiroğlu**
*Co-Founder and CEO of Economics for the Environment Consultancy (eftec)*

**Professor Daniel Rigby**
*Professor of Economics, University of Manchester*

# Agenda

| Time (GMT) | Session |
| --- | --- |
| 08:45 - 09:30 | Registration and tea, coffee, pastries |

**09:30 - 10:00**     **Keynote: Professor Emily Shuckburgh OBE**
*Honorary President - Aldersgate Group, Director - Cambridge Zero*

**10:00 - 11:00**     **Session 1: Influencing Behaviour Through Policy**
*Chair: Dr Eugenie Dugoua, LSE*

*Household Behaviour and Energy Use: Empirical Evidence and Policy Implementations*

Dr Katherine Hassett
Organisation for Economic Co-Operation and Development (OECD)

*Perverse Incentives in CCUS Policy Design*

Dr Joseph Stemmler
University of Oxford

*Induced Innovation, Inventors, and the Energy Transition*

Dr Eugenie Dugoua
London School of Economics and Political Science

**11:00 - 11:20**     Coffee Break

**11:20 - 12:40**     **Session 2: Distributional Impacts of Policy**
*Chair: Ece Özdemiroğlu, eftec*

*The Impact of Climate on Indian Household's Living Costs*

Professor Robert Elliott
University of Birmingham

*Which Households Bear the Highest Costs of Climate Policy?*

Leonard Missbach
Mercator Research Institute for Global Commons and Climate Change

*Young People Are Particularly Vulnerable to Humid Heat: Evidence from Mexico*

Andrew Wilson
Columbia University

*Policies to Reduce Carbon Leakage: Insight from Meta-Analysis*

Mengxi Xie
KU Leuven

**12:40 - 13:40**     Lunch

# Agenda

| Time (GMT) | Session |
|---|---|

**13:40 - 14:40**

**Session 3: Multidisciplinary Perspectives for a Sustainable Marine Environment**
*Chair: Dr Silvia Ferrini, University of East Anglia*

***Understanding the Complexity of Measuring the 'Maximum Sustainable Yield' Principle***

Professor Jon Pitchford
University of York

***Understanding Consumer Preferences for Sustainable Seafood Consumption***

Ellen McHarg
University of East Anglia

***How Evidence Can Feed Policy Decision-Making***

Dr Bryce Stewart
University of York

***Panel Discussion***

Dr Aisling Lannin
Marine Management Organisation

Jack Clarke
Marine Conservation Society

Dr Mike Roach
National Federation of Fishermen's Organisations

**14:40 - 15:40**

**Session 4: Financing Nature and Climate Solutions**
*Chair: Professor Nicholas Hanley, University of Glasgow*

***Maximising Biodiversity Gains in Woodland Creation Schemes***

Dr Katherine Simpson
University of Glasgow

***A Tree Planter's Dilemma: Decision-Makers Must Look Beyond Land Use Change Scenarios to Avoid Damaging Afforestation Outcomes***

Dr Christopher Lee
University of Exeter

***Appeal of Carbon Offsets: Which Project Characteristics Are Valued on the Voluntary Carbon Market?***

Tara L'Horty
Universite de Lorraine, AgroParis Tech

**15:40 - 16:00**    Coffee Break

# Agenda

| Time (GMT) | Session |
|---|---|

**16:00 - 17:00**

**Session 5: Changes and Challenges for Policy and Investment**
*Chair: Allan Provins, eftec*

***Aligning Biodiversity Metrics with Public Preferences for Environmental Policy***

Professor Ben Groom
University of Exeter

***Worker Flows in the Green Transition***

Dr Markus Janser
IAB, Federal Employment Services

***Do Energy Efficiency Obligations Decrease Residential Energy Use? Evidence from France***

Guillaume Wald
CERNA, Paris

***Leveraging Machine Learning to Understand Environmental Tax Opposition in Different Regions and Periods***

Johannes Brehm
RWI Leibniz-Institute for Economic Research

**17:00 -19:00**    Drinks Reception

**Posters**
*Available to View Throughout the Day*

***The Economic Benefits of Nature-Based Solutions for Climate Risk: A Meta-Analysis***

Guillermo Garcia Alvarez
VU Amsterdam

***The Long-Term Impact of Climate Change on Growth: Evidence from Chinese Provinces***

Dr Meng Tong
University of Chester

***The Impact of Behavioural Factors on Households' Willingness to Pay for Microgeneration Heating Technologies***

Kalila Mackenzie
Durham University Business School

# Keynote

## Professor Emily Shuckburgh OBE
Honorary President, Aldersgate Group
Director, Cambridge Zero



Emily's keynote will focus on the **state of climate science and the policy response.** Her speech will cover a brief introduction to the Aldersgate Group, providing an overview of the multidisciplinary discussions happening there with economy and business stakeholders. She will discuss the state of climate science, the high stakes involved, and the value and advantage of economists engaging with climate research.

*Emily is Director of Cambridge Zero, the major climate change initiative at the University of Cambridge - where she is also Professor of Environmental Data Science at the Department of Computer Science and Technology. She is Honorary President of the Aldersgate Group.*

*A mathematician and climate scientist, Emily is affiliated with an inspiring number of academic and research institutions including Darwin College, the Cambridge Institute for Sustainability Leadership, the British Antarctic Survey, the Royal Meteorological Society, and the Centre for Science and Policy.*

*At the University of Cambridge she is Director of the UKRI Centre for Doctoral Training on the Application of AI to the study of Environmental Risks (AI4ER), Academic Director of the Institute of Computing for Climate Science, and co-Director of the Centre for Landscape Regeneration. She worked for more than a decade at the British Antarctic Survey where her work included leading a UK national research programme on the Southern Ocean and its role in climate. Prior to that she undertook research at École Normale Supérieure in Paris and at MIT. She has also acted as an advisor on climate to the UK Government in various capacities, including as a Friend of COP26.*

*In 2016 she was awarded an OBE for services to science and the public communication of science. She is co-author with HM King Charles III and Tony Juniper of the Ladybird Book on Climate Change.*

## Household Behaviours and Energy Use: Empirical Evidence and Policy Implications

### Dr Katherine Hassett

Governments can support households in making more sustainable energy choices by addressing structural, financial, and psychological barriers. This presentation focuses on results from the third round of the OECD Survey on Environmental Policies and Individual Behaviour Change (EPIC) on households' energy-related decisions in nine countries. It summarises reported uptake of low-emission energy technologies, engagement in energy conservation, and support for energy-related policies. Results will also be presented for ongoing work to profile households according to their energy conservation behaviour and investment in low-emission energy technologies, identify the determinants of conservation and investment decisions, and estimate willingness-to-pay for renewable electricity. The findings indicate a number of ways in which governments can support households in making more sustainable energy-related choices.

*Katherine is an environmental economist with a background in behavioural and experimental economics. Her work focuses on the empirical analysis of environmentally-relevant behaviour and its implications for public policy. Recent work includes the implementation and analysis of a cross-country household survey on environmental attitudes and behaviours, an analysis of the distributional implications of open space provision in urban areas and an assessment of preferences for shared mobility.*

## Perverse Incentives in CCUS Policy Design

### Dr Joseph Stemmler

The Inflation Reduction Act amends Internal Revenue Code Section 45Q by enhancing subsidies for US firms to technologically sequester carbon. This paper analytically studies the effects of this subsidy on net emissions, considering its impact on input choice, output, and sequestration compared to a carbon tax. A carbon tax unambiguously reduces produced emissions and increases sequestration. While a sequestration subsidy increases firm sequestration, it also amplifies emitted carbon. If the rise in produced emissions exceeds the increase in sequestration, the subsidy leads to an increase in net emissions. Numerical simulations explore implications for eligible industries, providing insights into potential consequences of current policy design.

*Joseph is a postdoctoral research associate in the CO2RE Hub at the Smith School of Enterprise and the Environment at Oxford University. His research lies at the intersection of microeconomic theory and environmental economics. Joseph's current work assesses the efficacy of environmental policies in encouraging carbon dioxide removal and reducing carbon emissions through the lens of economic theory. Joseph holds a PhD in Economics, a B.S. in Mathematics, and a B.A. in Economics from the University of Texas.*

# Induced Innovation, Inventors, and the Energy Transition

## Dr Eugenie Dugoua
**Session Chair**

We study how individual inventors respond to incentives to work on "clean" electricity technologies. Using natural gas price variation, we estimate output and entry elasticities of inventors and measure the medium-term impacts of a price increase mirroring the social cost of carbon. We find that the induced clean innovation response primarily comes from existing clean inventors. New inventors are less responsive on the margin than their average contribution to clean energy patenting would indicate. Our findings highlight the potential importance of policies that increase the supply of clean inventors who are focused on mitigating climate change.

*Eugenie is an Assistant Professor in Environmental Economics at the London School of Economics, in the Department of Geography and Environment. As an environmental economist, Eugenie works on topics at the intersection of environmental issues and innovation and technological change. Her research interests lie primarily in understanding how policies, and more broadly speaking, institutions can influence innovation and science to make economic development sustainable for the environment and societies. Eugenie graduated with a Ph.D. in Sustainable Development from the School of International and Public Affairs at Columbia University in 2018.*

## The Impact of Climate on Indian Households' Living Costs

### Professor Robert Elliott

Exploiting the geographical variation in climate across India and the availability of district-level household expenditure data, we estimate the impact of climate on Indian households' living costs. To accomplish this we use an approach more frequently employed to calculate demographic equivalence scales. We find that whereas higher precipitation decreases living costs, heating and cooling degree days, as well as relative humidity, increase them. Based on these findings we further compute climate equivalence scales for otherwise identical households located in major cities in India.

*Robert is an applied economist who works at the intersection of international economics, development economics, environmental and energy economics and international business. He has a particular interest in the Chinese economy, firm behaviour, natural disasters and the impact of globalisation on the environment. He is an editor for the Sustainable Future Policy Lab, a Director of the Trade, Environment, Development and Energy (TEDE) research group, a Co-I on ReLIB as part of the Faraday Institute, a member of Water Challenges in a Changing World IGI and an Affiliate of the Lloyds Bank Centre for Responsible Business. Professor Robert Elliott is also a part of the Birmingham Plastics Network, an interdisciplinary team of more than 40 academics working together to shape the fate and sustainable future of plastics.*

## Which Households Bear the Highest Costs of Climate Policy?

### Leonard Missbach

Climate policy affects different people differently – with important implications for public acceptability of policy reforms. Here, I present novel evidence about the distributional effects of climate policy for 87 countries. Building on a novel micro-level dataset and machine learning methods, I distil country-specific household characteristics that determine differences in households' additional costs. My findings demonstrate that heterogeneity in affluence is often an insufficient predictor for heterogeneous costs of climate policy and that more granular household-level information can be meaningful. Findings from this study can help design more efficient, equitable and thus politically viable climate policy design.

*Leonard is a researcher at the Mercator Research Institute on Global Commons and Climate Change (MCC) in Berlin, Germany, and a PhD student in the final year at TU Berlin. Leonard works on topics from climate, energy and development economics. He uses methods from econometrics and data science to enhance our understanding of efficient environmental policy. Leonard has taught several courses building on research-based learning and holds a Master of Science in Industrial Engineering.*

# Young People Are Particularly Vulnerable to Humid Heat: Evidence from Mexico

## Andrew Wilson

Recent studies have found that heat-related mortality is the largest component of future damage from climate change and that heat-related mortality is concentrated among the elderly. In this study, we show that when accounting for humidity, heat-related mortality is instead concentrated among young people, especially children under five and young working-age adults. We estimate historical and projected mortality across age groups in Mexico. Historically, we find that the overall number of deaths attributed to heat exposure is 11% higher when accounting for humidity. In Mexico by the end of the century (in a current policies emissions scenario), we project that age-dependent vulnerability to humid heat results in a 42% increase in temperature-related deaths among under-35-year-olds and a 25% decrease among those 35 and older.

*Andrew is a PhD candidate in the Sustainable Development program at Columbia University's School of International & Public Affairs and Earth Institute. In his work, he combines tools from Economics and Earth Sciences to answer questions related to our management of the global commons.*

*Andrew holds a BA in Political Economy and a Master of Public Policy from UC Berkeley, where he is still a member of the Global Policy Lab. He has worked at Habitat for Humanity, USAID, and NextGen Policy on housing, global development, and energy policy. Andrew spent a year at the White House Council of Economic Advisers, where he focused on environmental policy. In August 2024, he will join Stanford's Center on Food Security and the Environment as a postdoc. In 2025, he will join UVA's Batten School of Leadership and Public Policy as an assistant professor.*

# Policies to Reduce Carbon Leakage: Insights from Meta-Analysis

## Mengxi Xie

Over the past few decades, substantial literature has examined the effectiveness of different policy instruments in addressing carbon leakage. This paper conducts a meta-regression analysis on 416 estimates of the leakage ratio coded from 39 economic studies dating from 2004 to 2022, quantifying the impact on carbon leakage induced by different climate policies. The results confirm the significant effect of both anti-leakage policies within and across the border of a carbon policy region. It further sheds light on future avenues for research and policy design which could benefit from involving more politically feasible options and a broader range of countries.

*Mengxi Xie is a third year PhD student in environmental economics at KU Leuven. She is interested in applied economics, climate change, and industrial organizations. Her PhD research focuses on the causal impact of environmental policies on firm performance. She studies the effect of automated pollution monitoring in imposing firms' compliance in China. Her PhD also investigates the strategic response of US and Chinese firms to the announcement of EU CBAM, by merging the firm-level data with text-analysis using machine-learning approaches. Before joining KU Leuven, Mengxi obtained an undergraduate degree in International Politics and a graduate degree in Management.*

## Ece Özdemiroğlu

### Session Chair

*Ece is the founder and CEO of eftec and the Co-Founder of UKNEE.  Her work focuses on the economic valuation of natural capital assets and the use of this evidence in accounting and appraisal across all sectors. She uses economic analysis to showcase the benefits of taking interlinking action to restore nature, tackle climate change, and ensure long-term economic sustainability.*

*Ece currently holds and has held a number of professional and advisory positions including member of the Scottish First Minister's Environment Council, Chair of the British Standards Institution's Assessing and Valuing Natural Capital Committee (which launched BSI:8632), Convenor of the ISO Working Group preparing ISO 14054 on Natural Capital Accounting for Organisations, Commissioner at the Value Commission, and previously member of the UK Climate Change Committee (Adaptation) from 2016 - 2022.*

This session will link fisheries operations, ecological modelling, consumer preferences and policy scenarios to highlight practical sustainability solutions.

It will bring together researchers and stakeholders of the SMMR Pyramid of Life project and will include three short presentations followed by a panel discussion with fisheries stakeholders on the challenges to achieving long-term sustainability in UK waters.

## Understanding the Complexity of Measuring the 'Maximum Sustainable Yield' Principle

## Professor Jon Pitchford

*John is a Professor in both Biology and Mathematics at the University of York. He is interested in ecological complexity, and how this depends on the mathematical language of nonlinearity and uncertainty. This has implications on various scales: from microbial processes to large scale ecosystems. Jon leads a NERC/ESRC Pyramids of Life research grant, where he combines research (through rigorous mathematics and hard-won datasets) with communications with managers, legislators, retailers, conservationists, consumers, and fishers.*

## Understanding Consumer Preferences for Sustainable Seafood Consumption

## Ellen McHarg

*Ellen is a PhD student at the University of East Anglia and environmental economist at the Centre for Environment, Fisheries and Aquaculture Science (Cefas). Her research focuses on applying economic valuation methods and behavioural science for natural capital and ecosystem services to support sustainable dietary transitions.*

# How Evidence Can Feed Policy Decision-Making

## Dr Bryce Stewart

*Bryce is a marine ecologist and fisheries biologist whose work has ranged from temperate estuaries to tropical coral reefs and the deep-sea. The central thread in his research has been to gain an increased understanding of the factors regulating marine populations and communities so as to ensure their sustainable utilisation. More recently his focus has been on how to improve the management of fisheries through the use of predictive recruitment models, marine protected areas and stock enhancement. Bryce also actively promotes sustainability within the seafood industry by working with everyone from government ministers to fishermen, restaurants and supermarket chains. Since 2016 he has been particularly involved with assessing the effects of Brexit on UK fisheries and the marine environment, and helping to plan for future reform of management by working with a wide range of stakeholders and the Government.*

## Dr Aisling Lannin

## Head of Scientific Evidence and Evaluation
## Marine Management Organisation

*Aisling is Head of Scientific Evidence and Evaluation at the MMO. She has a PhD in fisheries biology and management, with extensive time working at sea and in European fisheries laboratories. She has 15 years' experience applying UK Government marine and fisheries policy using interdisciplinary science. She managed a UK Marine Protected Area (MPA) and co-wrote an ecosystem based MPA management plan hailed as a UK exemplar. She has provided scientific advice for stakeholder identification of MPAs and marine license applications at Natural England. Aisling co-designed the MMO's scientific evidence delivery system and co-wrote the Evidence Strategies. Her work in the MMO has been focused on applying science to marine decision making in fisheries, conservation, regulation of environmental impacts from development and implementing of a marine planning system. This has required advising and steering research programmes across the UK within and outside government as well as designing and commissioning bespoke research to fulfil scientific evidence needs for the MMO. Aisling led the Marine Pioneer programme for Defra and the MMO, a collaborative and participative exploration of applying a natural capital approach in two coastal and marine areas in England.*

# Jack Clarke

## Seafood Engagement Manager
## Marine Conservation Society

*Jack has worked in sustainable seafood for over a decade. He founded Catchbox, the first Community Supported Fishery in Europe, before launching the award-winning social enterprise SoleShare. He is a champion of British seafood and drives innovation in more sustainable and equitable supply chains. He currently works for the Marine Conservation Society, where he leads the seafood engagement programme, helping businesses sell better fish and sell fish better.*

# Mike Roach

## Deputy CEO: National Federation of Fishermen's Organisations

*On leaving the Royal Navy, Mike Roach undertook his undergraduate degree in Coastal Marine Biology at the Centre for Environmental and Marine Studies at the University of Hull. He then worked as a fisheries observer at Holderness Fishing Industry Group (HFIG) whilst self-funding his PhD at the University of Hull. His PhD, awarded in 2020, focused on the impacts of an offshore wind farm on commercially important crustacean species. Mike led the offshore research program of the HFIG from 2013 to 2023, whilst also acting in the capacity of crewman for the RV Huntress and relief skipper. He is the current chair of the SAGB Crustacean Committee and the Shellfish Industry Advisory Group. In 2023 he took an appointment as the Deputy CEO for the National Federation of Fishermen's Organisations to engage with fisheries and policy on a national scale*

# Dr Silvia Ferrini

## Session Chair

*Silvia Ferrini works at CSERGE as a Senior Research Associate, on projects such as the UK-NEA II and for the Natural Capital Committee and the SMMR Pyramids of Life Project. She holds a PhD in Applied Statistics from the University of Florence. Her key research interests and expertise are evaluation techniques, environmental and resource economics, discrete choice models, experimental design, simulation methods, and decision theory.*

## Maximising Biodiversity Gains in Woodland Creation Schemes

### Dr Katherine Simpson

Despite a century-long increase in UK woodland cover, species decline and uncertainties about the biodiversity impact of newly planted woodlands necessitate targeted, evidence-based policies to support woodland creation. Understanding the spatial relationship between economic incentives (e.g., agricultural rents) and ecological benefits (e.g., woodland bird abundance) is crucial. Our work explores these dynamics, comparing payment for actions with a novel "payment for modelled results" agri-environment scheme in two case studies. Positive spatial correlation between agricultural rents and ecological benefits highlights the need to target "expensive parcels" for woodland creation. The study emphasizes understanding landowners' economic decision-making for incentive-based policies that maximize conservation efforts in ecologically beneficial sites.

*Katherine is an environmental economist specialising in agri-environment schemes and environmental/nature market designs (including biodiversity net gain). Her work integrates insights from ecology, economics, social science, and law & policy to deliver applied, evidence-based research. In August 2023, she joined the Health Economics and Health Technology Assessment Unit at the University of Glasgow as a Lecturer. Through this appointment Katherine aims to bridge the research gap between human and planetary health, exploring the role of nature-based solutions in addressing the intertwined challenges of climate change, biodiversity loss, and human well-being.*

## A Tree Planter's Dilemma: Decision-Makers Must Look Beyond Land Use Change Scenarios to Avoid Damaging Afforestation Outcomes

### Dr Christopher Lee

Inherent uncertainty in Land Use Change (LUC) has largely been ignored in the design of historic climate change adaptation and mitigation schemes. Instead, scenario analysis has been the mainstay, evaluating LUC outcomes for a narrow or isolated set of potential futures. Here we show that such approaches are dangerously simplistic; to the extent that some LUC designs, which present favourably in a scenario-analysis approach, risk worse outcomes than if we simply do nothing. Focusing on afforestation across Great Britain, we show that explicitly considering uncertainty in LUC design is crucial to avoid bad outcomes, and deliver the most cost-effective results.

*Christopher is an environmental economist and climate scientist, specialising in land use change modelling and resilience. Based at the Land, Environment, Economics and Policy (LEEP) Institute, at University of Exeter, Christopher's work focuses on climate change adaptation and mitigation through agricultural land use change. He works with policy and evidence teams at the UK Department for Environment Food and Rural Affairs (Defra), translating academic insights into land use policy. Christopher started his academic career as an atmospheric physicist, before retraining in agricultural valuation in the West Country; and later combining both disciplines at LEEP.*

## Appeal of Carbon Offsets: Which Project Characteristics are Valued on the Voluntary Carbon Market?

### Tara L'Horty

To shed light on the opaque dynamics of the worldwide voluntary carbon market, this study investigates transaction efficiency in relation to buyer preferences and aims to discern the aspects of carbon offset projects that appeal to buyers. Addressing the current data scarcity, an "indicator of appeal" was developed and explored as an alternative proxy to price. Through an econometric approach, this indicator is compared in regards to project characteristics such as carbon offset program, scope, size, specifications of provenance and resulting actual emission reduction. These characteristics reflect the tremendous heterogeneity of carbon credits traded on the market.

*Tara is a first-year Ph.D. candidate in Economics at the Climate Economics Chair and the French National Research Institute for Agriculture, Food, and Environment. With a background as an agronomist engineer, her research interests converge at the intersection of economic instruments, public policies, and nature-based mitigation and adaptation strategies for climate change. Tara's doctoral thesis focuses on the economics of voluntary carbon offsetting, examining failures in the over-the-counter voluntary carbon market and proposing solutions to address these challenges.*

### Professor Nicholas Hanley

### Session Chair

*Nick is Chair in Environmental and One Health Economics at the University of Glasgow, having previously held chairs at the universities of Stirling, Edinburgh, and St Andrews. He is an environmental economist who mainly works on the application of economic methods to biodiversity conservation, invasive species, and measures of sustainability. Nick is also interested in choice modelling and cost-benefit analysis; marine systems; the design of environmental policy (especially Payment for Ecosystem Service schemes); the economics of pollination; and ecological-economic modelling. He is Associate Editor of Resource and Energy Economics.*

## Aligning Biodiversity Metrics with Public Preferences for Environmental Policy

## Professor Ben Groom

Our understanding of the welfare implications associated with the biodiversity metrics currently implemented for appraisals of public policies and financial disclosures remains limited. This study employs a discrete choice experiment that explores which metrics of biodiversity existence values are perceived to be the most important. Results show the general public derives the largest value from the biodiversity attributes of species richness, extinction probability, and distinctiveness. We find this largely aligns with the preferences of experts in the fields of conservation science and ecology, as well as those in the financial sector. However, many of these biodiversity attributes are not reflected in commonly used metrics. We conduct a UK wide assessment using the NEV suite of models that shows the welfare benefits associated with following public and expert preferences for biodiversity are considerably higher, and spatial allocations dramatically different, compared to pursuing standard metrics such as Mean Species Abundance (MSA), Species Habitat Index (SHI), or even species richness.

*Ben is currently the Dragon Capital Chair in Biodiversity Economics at the University of Exeter. Between 2012 and 2020 Ben was a Professor of Environment and Development Economics at the London School of Economics and Political Science. Ben studied a BSc in Economics at Sheffield University, an MSC in Environmental and Resource Economics at UCL, and completed his PhD in Economics at UCL in 2005 on the topic of empirical and theoretical aspects of social discounting for distant time horizons.*

## Worker Flows in the Green Transition

## Dr Markus Janser

Using a text-mining approach to task descriptions of occupations together with worker-level administrative data, we explore the growth in the greenness of employment which amounted to 35% between 2012 and 2022. We first demonstrate that the general greening of occupations ("within effect") accounts for two thirds of the overall greening of employment, whereas shifting occupational employment shares ("between effect") account for the remainder. Second, we show which occupations contribute most to the within-effect. Third, we provide evidence which worker flows are mainly responsible for the between effect, and which socio-demographic groups drive these labour-market transitions.

*Markus is a senior researcher at the Institute for Employment Research (IAB) of the German Federal Employment Agency. He does research on labour market effects of environmental and climate policies, regional impacts of the green transition, and occupational changes. Markus Janser received his doctorate from the Otto Friedrich University of Bamberg. The title of his doctoral thesis was: "The greening of jobs: Empirical studies on the relationship between environmental sustainability and the labour market".*

## Do Energy Efficiency Obligations Decrease Residential Energy Use? Evidence from France

## Guillaume Wald

The French Energy Efficiency Obligation scheme (EEOs) requires energy suppliers to subsidize energy renovation. It plays a leading role as certified investments represented around EUR 4 billion in 2023. The policy stems from Directive 2012/27/EU on energy efficiency, which sets an annual energy use reduction target of 1.5% for the residential, tertiary, industrial and agriculture sectors. However, I estimate that the policy decreased residential energy use by less than .85% each year over 2017-19. This deceiving result is driven by a 49% energy performance gap: engineering projections used to calibrate obligations are twice as big as observed energy savings.

*Guillaume is a second year PhD candidate at Mines Paris, PSL. He holds a Master's degree in Analysis and Policy in Economics from the Paris School of Economics. In environmental economics, Guillaume studies the impacts of energy efficiency policies on residential energy use and the implied greenhouse gas emissions, including the distributional consequences of retrofit works in private and social housing. In labour economics, Guillaume analyses the effect of energy efficiency investments on the creation of green jobs, focusing on job stability.*

## Alan Provins

## Session Chair

*Allan is a Director at eftec. He is an economist who works with companies, government and NGOs to help them make better evidenced plans and decisions. Currently he is working with a number of UK water companies, supporting their customer engagement and strategic investment planning for the forthcoming regulatory price control process. This includes using a wide range of customer preference research methods, including revealed preference, stated preference, and subjective wellbeing analyses, and providing guidance and advice for the use of this evidence in the development of Business Plans. Allan led the team that developed the Corporate Natural Capital Accounting framework for the Natural Capital Committee. He holds an MA in Environmental Economics (with Distinction) from the University of East Anglia, and a BSc Hons Economics from University of Nottingham.*

# Thanks & Feedback

envecon 2024

Thank you for joining us at envecon 2024!

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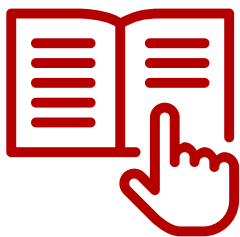
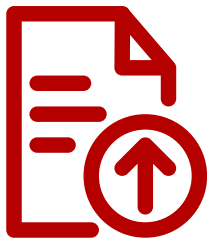[Click here for the online delegate survey](#)

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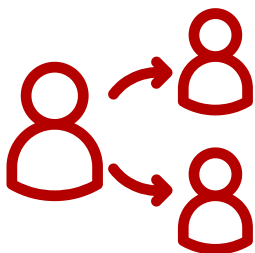- all envecon sessions since 2021
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# 2023 UKNEE Webinars

## 2024 series to be announced soon

*"How Bad Could it Be?"*
*The Future Effects of Marine Microplastic Pollution: Expectations & Policy*
Dr Peter King, University of Leeds

*Can Trade Openness Reduce the Impact of Temperature Shocks*
*on Productivity?*
Dr Leanne Cass, Grantham Research Institute

*Taskforce on Nature-related Financial Disclosures:*
*Introducing the TNFD Recommendations*
Emily McKenzie, Technical Director of the TNFD Secretariat

*Valuing Coastal Walking Along the King Charles III England Coast Path:*
*Applied Travel Cost and Benefit Transfer Methodology*
Ellen McHarg & Dr Barnaby Andrews, Cefas

*Seafood Consumption Habits in Younger Generations:*
*Preferences, Nudges, Behavioural Insights*
Gaetano Grilli & Samuel Barker, CSERGE

*Public Understanding of the Sixth Mass Extinction Around the World*
Dr Ganga Shreedhar, LSE

*Contested Values in Heritage: A Discrete Choice Modelling Study*
Brenda Dorpalen, Environment Agency & Thomas Colwill, Historic England

*Nudge+: Reflective Behavioural Policies for Sustainable Behaviour Change*
Dr Sanchayan Banerjee, VU Amsterdam

*Optimal Marine Plastic Abatement*
Dr Chris Stapenhurst, Budapest University of Technology and Economics

*Green Economics and Influencing Policy*
Sam Alvis, Head of Economy at Green Alliance

**Department for Environment Food & Rural Affairs**

## ENCA - Enabling a Natural Capital Approach resource

Enabling a Natural Capital Approach (ENCA) is a suite of best-available data, guidance, and tools to support decision-makers and analysts take account of nature. It is recommended for use by the HM Treasury Green Book.

ENCA guidance supports policy makers and analysts across Government to take account of the environment. A natural capital approach can also support private and public sector bodies navigate the challenges and opportunities arising from the interaction between the economy and the environment.

ENCA builds capacity and understanding in several ways:

Sets out the natural capital framework, which shows how the enhancement or degradation of natural assets affects the wealth, health and wellbeing outcomes valued by people and the economy, and how natural capital can be accounted for and valued

Provides a consistent approach to assessing impacts on nature, linking with HM Treasury Green Book appraisal guidance through the use of screening questions and a 4-step approach

Provides a one-stop shop for natural capital evidence that enables analysts quickly to identify relevant sources of valuation and biophysical evidence

Collates natural capital related case studies at various spatial scales to show real-world application, along with featured natural capital tools and guidance

*ENCA was originally launched in 2020. Version 3.0 was published in July 2023*

ENCA is regularly updated and edited by Defra's Environment Science and Analysis Division to include the best available natural valuation evide nce and research.

For any questions relating to ENCA or suggestions for including relevant new evidence, email EnvironmentAnalysis@defra.gov.uk

Access ENCA:

https://www.gov.uk/guidance/enabling-a-natural-capital-approach-enca

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# Organisations at envecon

*The organisations of delegates who wish to be included in the delegate list (as of 1st March) are below.*

*Full delegates list is available in the printed version of the booklet.*

## Organisations

- AECOM
- Birmingham University
- Bordeaux School of Economics, University of Bordeaux
- Centre for Environment, Fisheries and Aquaculture Science (Cefas)
- Climate Economics Chair
- Columbia University
- CoNISMa, University of Sienna
- Cyprus International University
- Defra
- Department for Energy Security and Net Zero
- Economics for the Environment Consultancy (eftec)
- Ecosystems Knowledge Network
- Environment Agency
- Exmoor SRT
- FCDO
- Finance Earth
- Forest Research
- Forestry Commission
- Greenfishers Consultants
- ICS Consulting
- Imperial College London
- INRAE
- Institute for Employment Research (IAB) of the German Federal Employment Agency
- Keele Business School
- KU Leuven
- LEEP Institute, University of Exeter
- Little Blue Research
- LIVE Economics ltd
- Logika
- Marine Biological Association
- Marine Management Organisation
- Mercator Research Institute on Global Commons and Climate Change
- Mines Paris - PSL
- National Federation of Fishermen's Organisations
- Natural Capital Solutions
- Natural England
- Natural England
- Norwich Business School, University of East Anglia
- Orbital Applied Economics
- Ove Arup and Partners
- Oxford Economics
- Parliamentary Budget Office, Houses of the Oireachtas
- PhD Researcher
- PwC
- Ricardo
- RSPB
- RWI Leibniz-Institute for Economic Research
- Scottish Government
- srh agribusiness
- SRUC
- Taylor & Francis
- Teesside University
- The Chartered Institution of Water and Environmental Management
- The Institute for Fiscal Studies
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