

Department for Environment, Food and Rural Affairs

## Defra's Science Advisory Council sub-committee: Biodiversity Expert Committee membership

### **Chair: Professor Rosie Hails MBE**

Director of Nature and Science, The National Trust.

Appointed: March 2023 for 3 years.

Professor Rosie Hails MBE is an ecologist and the current Nature and Science Director at the National Trust, holding honorary chairs at Exeter and Cranfield Universities. Her role is to develop the Trust's nature strategy, research portfolio and advice on science evidence relevant to Trust decision making.

She leads teams focusing on Nature Conservation, Environmental Research and Data, Trees and Woodland Creation, Wildlife Management, Land Use, Farming and Public Benefits delivered by Nature. She is also one of 3 directors of 'Renew' – a Changing the Environment programme. The programme is funded by Natural Environment Research Council (NERC), and led by the University of Exeter and National Trust partnership.

She is a member of the Department for Environment, Food and Rural Affairs (Defra) Science Advisory Council, chair of the Biodiversity Expert Committee and a member of Defra's bovine tuberculosis (TB) partnership. She is also on a number of advisory boards. Formerly, she was the Science Director for Biodiversity and Ecosystem Science at the UK Centre for Ecology & Hydrology (2013 to 2018). She was awarded an MBE for services to Environmental Research in 2000.

## **Members**

### **Doctor Mark Dickey-Collas**

Independent researcher

Appointed: October 2023 for 3 years.

BEC expertise: Marine ecology

Mark is a marine scientist, operating independently as 'Dickey-Collas Marine'. He has expertise in the provision of scientific advice to governments for marine conservation, fisheries, biodiversity and ecosystem-based management (EBM). Mark has over 30 years' experience. This includes a decade in Northern Ireland, and work in the Netherlands and the International Council for the Exploration of the Sea (ICES) headquarters in Denmark.

Initially, he specialised in pelagic fish and fisheries, before moving into the realm of EBM, and then becoming Chair of the ICES Advisory Committee. His scientific experience spreads across population dynamics, ecosystem modelling, conservation, stakeholder engagement and the policy and science interface. Mark oversaw the production and delivery of more than 250 pieces of annual advice to governments, including into the Marine Strategy Framework Directive of the EU.

He left ICES in December 2023 and is:

- an adjunct professor at DTU-Aqua
- a member of the International Union for Conservation of Nature (IUCN) Fisheries expert group
- a council member of the Marine Biological Association of the UK

He enjoys the challenges created when building and converting scientific knowledge into the evidence to guide policy development. He has a proven track record of successfully working with stakeholders. He chaired the Food and Agriculture Organization (FAO) expert panel on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) listing of aquatic species. He is also a former member of the Integrated Marine Biosphere Research (IMBeR) Science Steering Committee. He contributes to the UN endorsed Ocean Decade programme FishSCORE. Mark values diversity and equity in marine science.

## **Mr Ian Dickie**

Director at etfec

Appointed: September 2023 for 3 years.

BEC expertise: Economics

At etfec, Ian has managed over £2.5million worth of research for the Defra family in the UK, including on natural capital investment cases in England for the first UK Natural Capital Committee and biodiversity net gain market analysis.

Ian is:

- an author of the Natural Capital Protocol
- a technical author of the United Nations Development Programme (UNDP) Biodiversity Finance Guide (BIOFIN)
- currently technical editor of the British Standards Institution (BSI) Nature Market Principles standards

He has directed natural capital accounts for over 50 organisations in the finance, transport, water, forestry, ports and agriculture sectors. He has developed ecosystem accounts for the UK and Caribbean countries, and Natural Capital investment plans for Greater Manchester and Cumbria.

He is currently a member of advisory panels for the Capitals Coalition and Peatland Code. He was a Director of the Aldersgate Group for 10 years and a member of the Institute of Chartered Accountants in England and Wales (ICAEW) Sustainability Committee for 8 years. Ian was previously head of economics for the Royal Society for the Protection of Birds, whom he joined in April 2000.

Ian holds an MSc in European Environmental Regulation and Policy from Lancaster University, and an MA in Economics from the University of St Andrews.

## **Professor Darren Evans**

School of Natural and Environmental Sciences, Agriculture Building, Newcastle University

Appointed: September 2023 for 3 years.

BEC expertise: Agriculture

Professor Evans is an ecologist and conservationist. He merges advances in network ecology and DNA and RNA metabarcoding to examine the impacts of environmental change on species interactions and ecosystem functioning. He is currently studying the consequences of altered network structure on fungi, plant and animal populations, mainly within forest- and agro-ecosystems. His work examines the resilience of food systems at the farm, landscape and global scale, and is developing new methods for adaptation and restoration.

He has created a unique range of antagonistic, mutualistic and multilayer networks under different types of perturbation (simulated climate-warming, habitat modification, wildfire and artificial light at night (ALAN)). These are fully replicated in space and time in order to examine variation in network structure and complexity within and between experimental treatments.

For the past 20 years, he has been part of a team studying the impacts of livestock grazing pressure on upland biodiversity (the Glen Finglas experiment). Professor Evans collaborates widely and leads an international consortium of researchers applying network science to agricultural systems. The team are developing novel socio-ecological networks to examine the robustness of farm ecosystem services to future environmental change scenarios to better inform policy and land management. He is a member of the Forestry Commission Expert Committee on Forest Science and Senior Editor of the Journal of Animal Ecology.

## **Professor Jane K Hill OBE**

Professor and Associate Dean for Research in the Faculty of Sciences, University of York

Appointed: August 2024 for 3 years.

BEC expertise: Terrestrial ecology; International biodiversity and climate

Jane is a terrestrial ecologist, researching how species (particularly insects) respond to climate change and habitat degradation. This research includes understanding the causes and consequences of biodiversity change, as well as examining the complexity of change, including species gains and losses. This research examines factors affecting the rates of species' range shifts to track climate, including factors affecting range expansions and extinctions of local populations. Jane's research also examines the effectiveness of conservation actions to protect and enhance biodiversity, for example identifying when and how improving habitat connectivity is beneficial for species. Much of this ecological research focuses on the UK, but Jane also studies tropical ecosystems.

For the past 30+ years, Jane has been examining the impacts of tropical forest loss and degradation on biodiversity in South East Asia. She examines the responses of tropical biodiversity to climate change, and the consequences of commercial logging and agricultural development (palm oil) on biodiversity. The research has tested the impacts of environmental sustainability standards, and provided policy recommendations for protecting biodiversity to better inform land management. Jane is a member of the UK Research and Innovation (UKRI) Natural Environment Research Council's Science Committee, current President and Trustee of the Royal Entomological Society, and trustee of the South East Asian Rainforest Research Partnership. She gave evidence to a House of Lord's committee inquiry (2023) on protected areas, was a panel member of the independent review of protected site management on Dartmoor (Defra Fursdon report 2023), and is a member of Yorkshire Wildlife Trust's Nature Recovery Committee and the North Yorkshire and York Local Nature Partnership Board.

## **Doctor Nick Isaac**

Macroecologist at UK Centre for Ecology & Hydrology.

Appointed: June 2023 for 3 years.

BEC expertise: Modelling and Data analysis

Dr Nick Isaac studies how biodiversity is distributed in space, how it is changing over time and how we measure it. He has over 20 years of research experience, combining statistical analysis of biodiversity data with the development of tools for making robust inferences from noisy data. Much research in his team uses terrestrial invertebrates in the UK as a model system, with data gathered by volunteer citizen scientists. His work is focussed on:

- questions around how evidence from disparate data types can be combined for biodiversity inference (including the design of new monitoring schemes)
- the development of plausible pathways for the future of biodiversity

Nick is a member of the EU Expert Group on Pollinating Insects.

## **Professor Daniel Jones**

Associate Head of Ocean BioGeosciences, Leader of Deep Seas, National Oceanography Centre

Appointed: September 2023 for 3 years.

BEC expertise: Marine ecology

Professor Jones's research is in benthic ecological pattern and process, particularly related to both anthropogenic and natural disturbance. His work assesses disturbance-related effects across a range of scales, from oceanic basins to individual organisms. His background is in community ecology, particularly in image-based assessment of the larger animals inhabiting the seafloor. He applies his experience in working in the marine environment to improving environmental assessment and management. This includes regular work to provide scientific evidence to manage the deep-sea mining and other offshore industries. He also provides regular advice to government and engages in policy development. He has been on over thirty seagoing research expeditions and increasingly adopts innovative approaches for marine monitoring, particularly using autonomous systems.

## **Professor E.J. Milner-Gulland**

Biology Department, Oxford University

Appointed: September 2023 for 3 years.

BEC expertise: International biodiversity policy, biodiversity net gain

Professor Dame E.J. Milner-Gulland is Tasso Leventis Professor of Biodiversity at the University of Oxford. She is Director of the Interdisciplinary Centre for Conservation Science in the Department of Biology. EJ works on understanding, predicting and mitigating biodiversity impacts, and monitoring and evaluating conservation interventions for their social and biodiversity outcomes. This includes large programmes on food systems, Nature Positive transitions, the wildlife trade, and social justice and equity.

She aims to ensure that all the research in her group is:

- addressing issues identified by practitioners and policy-makers
- carried out collaboratively with end-users
- building the capacity of early-career conservationists, particularly in low-income countries

She has launched a number of initiatives that aim to change the real-world conversation around conservation, including the Nature-Positive Universities initiative and the Conservation Optimism movement. She is the Chair of the UK government's Darwin Expert Committee and a Trustee of WWF-UK.

## **Professor Nathalie Pettorelli**

Professor at the Institute of Zoology (IoZ), Zoological Society of London (ZSL)

Appointed: September 2023 for 3 years.

BEC expertise: Terrestrial ecology

Professor Pettorelli is a biodiversity expert with expertise in ecology, conservation biology, statistics, remote sensing and programming.

Her work focuses on the biodiversity crisis, producing knowledge that:

- deepens our understanding of the processes driving this loss
- helps identify solutions that are likely to support nature recovery in times of rapid global environmental changes

So far she has edited, authored or co-authored 6 books and over 200 publications on the topics of biodiversity monitoring, climate change ecology and conservation. She has supervised a number of PhD students and post-docs, all on topics related to global environmental change and its impacts on biodiversity and ecosystem services. She:

- is the co-chair of the inter-commissional IUCN rewilding working group
- sits on Group on Earth Observations (GEO) Programme Boards
- is the Editor in Chief of Remote Sensing in Ecology and Conservation

## **Professor Andy Purvis**

Research Leader at the Natural History Museum.

Appointed: June 2023 for 3 years.

BEC expertise: Data analysis

Professor Andy Purvis trained as an evolutionary biologist at the University of Oxford. He was Professor of Biodiversity at Imperial College London before moving to the Natural History Museum in 2013. He leads the PREDICTS project (Projecting Responses of Ecological Diversity In Changing Terrestrial Systems). This aims to model globally how local terrestrial biodiversity responds to human pressures. It then uses these models to project potential biodiversity futures under alternative scenarios of socioeconomic development. PREDICTS uses a global database compiled from local biodiversity surveys to estimate the Biodiversity Intactness Index. This index is the first indicator available on the Natural History Museum's Biodiversity Trends Explorer.

Other current projects aim to:

- understand global trends in insect biodiversity
- improve biodiversity in horticultural agriculture
- improve access to nature for the UK's schoolchildren

He was:

- a Coordinating Lead Author on the first Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment of biodiversity and ecosystem services (published in 2019)
- scientific advisor on Sir David Attenborough's documentary, "Extinction: The Facts" (2020)
- a contributor to Greta Thunberg's "The Climate Book" (2022)

## **Doctor Andrew Stott MBE**

Independent consultant

Appointed: September 2023 for 3 years.

BEC expertise: Science-policy interface, monitoring and review

Dr Andrew Stott was a science adviser, research programme manager and senior international negotiator in Defra in a career spanning 30 years up to 2023. He is now an independent consultant.

Andrew was the UK National Focal Point for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) from its inception in 2011 up to 2022. He has recently been selected as an expert to help prepare a scoping report for the second IPBES global assessment on biodiversity and ecosystem services.

Andrew is an internationally recognised expert on indicators for biodiversity. He was a leading member of the technical expert groups on indicators set up by the UN Convention on Biological Diversity (CBD) over the last 15 years. This included recommendations on headline indicators that were adopted in the Kunming-Montreal Global Biodiversity Framework (KMGBF) at CBD Cop15. Andrew was also co-chair of the contact group that negotiated and agreed the planning, monitoring, reporting and review processes for the KMGBF. Prior to this, he led work to develop UK biodiversity indicators as Official Statistics aligned with the post-2010 Aichi Biodiversity Targets. He was also responsible for developing the Outcome Indicator Framework for the 25 Year Environment Plan.

In 2024, Andrew was honoured with an MBE for services to nature and climate.

## **Doctor Martin Wilkes**

Ecologist and Data Scientist, University of Essex

Appointed: September 2023 for 3 years.

BEC expertise: Freshwater and transitional water ecology

As an ecologist with an industry background in data science, Dr Martin Wilkes is interested in data-driven explanations and predictions of biodiversity change. He uses large scale (national-international) datasets, ecological theory, statistical programming and high performance computing. His mission is to help the environmental science and management communities find solutions to the challenges of maintaining biodiversity, food production and water security in a changing world. Martin's research interests include ecology, biodiversity modelling, artificial intelligence and machine learning, and research software development.