



SCIENCE AND
CONSERVATION EVENTS

NATURE IN THE BALANCE: EARTH SYSTEM TIPPING POINTS AND THEIR IMPLICATIONS

DATE

Tuesday 11 February
2025

TIME

6pm – 7:30pm

LOCATION

Huxley Lecture Theatre,
ZSL

Free to attend

Registration required



AGENDA

Short talks

Paul Pearce-Kelly

Senior Curator, Invertebrates and Fish, ZSL

Earth system tipping points and their implications

Dr Chris Yesson

Senior Research Fellow, Institute of Zoology, ZSL

Coral reef tipping points

Rachel Jones

Marine Science Programme Manager, ZSL

Practical responses to changing coral reefs

Long talk

Professor Sir David King

Emeritus Professor, University of Cambridge

Greenhouse gas emissions realities and policy imperatives

Chair

Matthew Gould

CEO, ZSL

SHORT TALKS

Introduction to the global tipping points revision, key messages and considerations

Paul Pearce-Kelly, ZSL

The International Panel on Climate Change defines a tipping point as a critical threshold beyond which a system reorganises, often abruptly and/or irreversibly. Many key components of our Earth system are known to have, often highly interconnected, tipping points meaning that impacts on one system such as icesheets, can have cascading effects on other systems with profound implications for biodiversity and humanity's wellbeing. Unfortunately, human generated climate change and other stressors are pushing us dangerously close to (and in some cases are already exceeding) some of the most important system tipping points. This presentation will draw upon latest understanding of these vitally important issues and their implications for threat assessment and conservation action.

Paul is Senior Curator at ZSL. In addition to his role at ZSL, Paul serves on IUCN's Conservation Planning, Climate Change and Coral Specialist Groups and has a special interest in helping to clarify climate change threats to biodiversity and conservation response requirements. Paul has been closely involved with the ongoing Global Tipping Points Revision initiative led by Exeter University.

Coral reef tipping points

Dr Chris Yesson, Institute of Zoology, ZSL

Coral reefs face imminent collapse due to multiple human-driven stressors, exceeding tipping points. In this talk we will summarise our new perspective piece that highlights the urgent

need for a comprehensive assessment of the many stressors impacting corals and, very importantly, their interactions, including ocean warming, overshoot, and cascading impacts. While a 1.2°C global mean surface temperature increase is identified as a potential tipping point threshold, this likely underestimates the true risk. Given the exceeded thresholds and the crucial role of coral reefs, a precautionary approach is essential, prioritizing aggressive mitigation and adaptation efforts to prevent irreversible ecosystem loss.

Chris is a Senior Research Fellow at ZSL's Institute of Zoology, whose work as a benthic ecologist uses low-cost tech to explore seabed habitats in temperate and cold water. Chris conducts much of his fieldwork in the UK and Greenland, using camera surveys to examine temperate and polar seabed habitats such as kelp forests and cold-water coral fields, mapping habitats and assessing species' vulnerability to human activities. Chris' research helps improve knowledge of these habitats' distributions, connections and ecology, so they can be better protected and restored.

Practical responses to changing coral reefs

Rachel Jones, ZSL

Working in the Chagos Archipelago in the last 20 years, scientists have tracked rapid changes in coral reef ecosystems punctuated by dramatic mortality events caused by marine heatwaves, followed by partial recovery. Models predict the former catching up with the latter at some point in the next decade or two. We can study these systems to extinction, or we can take actions to slow or reverse decline. This talk will give real life examples of how conservation organisations like ZSL use this body of science, and uncertain predictions of the future, to decide when and how to act to save species and build resilience.

Rachel leads the Bertarelli Programme in Marine Science at ZSL; an Indian Ocean-focussed research programme which is advancing the understanding of Marine Protected Areas so they can be better

managed to provide the maximum amount of protection. Rachel works to coordinate science in service of improved conservation for marine ecosystems, and her efforts aid in creating, understanding and defending the integrity of marine protected areas at an ecosystem scale, enabling large scale natural processes to recover in the face of climate change pressures.

LONG TALK

Greenhouse gas emissions realities and policy imperatives

Professor Sir David King, University of Cambridge

***Sir David** is an Emeritus Professor of Chemistry at the University of Cambridge. He is also the Founder and Chair of the Climate Crisis Advisory Group (CCAG), a global consortium focused on addressing the climate emergency. Sir David has held key positions, including the UK Government's Chief Scientific Adviser (2000–2007) and also the Foreign Secretary's Special Representative on Climate Change (2013 to 2017). He played a crucial role in shaping climate policies and global initiatives, such as Mission Innovation and the Energy Technologies Institute. A Fellow of the Royal Society, he has received 23 honorary degrees and numerous awards, including the AAAS David and Betty Hamburg Award for Science Diplomacy in 2022.*



EVENT FORMAT

- This event will take place in the Huxley Lecture Theatre and will be filmed and published on our Science and Conservation YouTube channel (zsl.org/IOZYouTube). Please be aware, by attending you consent to being recorded during the Q&A session.
- Seats are allocated on a first-come, first-served basis.
- Before attending, please read our Code of Conduct found [here](#).
- The event will run from 6-7:30pm
- It will consist of short presentations from the speakers, followed by a Q&A and panel sessions.
- To submit a question to a speaker prior to the event, please send it to scientific.events@zsl.org. Please be aware we may not be able to answer all questions.
- There is no charge for this event, but registration is required.



COMING UP...

Economies for a sustainable future

25 February 2025, 6-7:30pm

In person; Huxley Lecture Theatre, ZSL

How can economies reform to address climate change and biodiversity loss, and achieve ecological ambitions?

This event will articulate visions of pathways for sustainable futures within the ecological and resource constraints of a finite planet, suggesting ways forward for nature recovery. Speakers will discuss how interdisciplinary perspectives need to be combined, and new alliances formed, to deliver the transformations required for securing the future we want.

www.zsl.org/science/whats-on

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