

Building Resilience to the Impacts of El Niño: Lessons from the Field (Draft Agenda)

SESSION 1: El Niño 2015-2016-Context and Programme Research	
8:30	Welcome coffee with project installations
9:15	Tim Wheeler, Director of Research and Innovation, NERC Opening remarks
9:30	Yadvinder Malhi, University of Oxford Characterising the 2015-2016 El Niño
9:40	El Niño Individual Research Project Teams (see below) Lightening talks
11:15	Coffee break and project installations
11:45	Chair, Ej Milner-Gulland, University of Oxford Understanding the Impacts of El Niño Panel Discussion
	Panellists: Piran White, University of York
	Rosalind West, DfID
	Mike Morecroft, Natural England
12:30	Lunch break with project installations
SESSION 2: Approaching Resilience in Research and Practice	
13:30	Mark Hirons, University of Oxford Conceptualising resilience in the El Niño research programme
14:00	El Niño Synthesis Project Teams Resilience in practice
15:00	Coffee break and open space networking
15:45	Chair, Ej Milner-Gulland, University of Oxford Resilience in Practice Panel Discussion
	Panellists: Rebecca Asara, Nature Conservation Research Centre, Ghana
	Gordon Conway, Imperial College London
	Katrina Brown, University of Exeter
17:00	Drinks reception

Speaker Bios

Tim Wheeler, Director of Research & Innovation, NERC

Tim Wheeler is currently Director of Research and Innovation at the Natural Environment Research Council (NERC), the UK's main agency for funding excellent research in the environmental sciences. Prior to that Tim was Deputy Chief Scientific Adviser at the UK Department for International Development for six years, providing science advice to Ministers and overseeing a research portfolio for international development. Throughout the El Nino extreme weather event of 2015/16 Tim directed the science advice within Government that led to 13 million people across Africa being provided with UK Government aid to enable them to better cope with the impacts of El Nino. Previously as Professor of Crop Science at the University of Reading, Tim published more than 180 scientific paper over 25 years on climate change and the sustainability of agriculture and food.

Yadvinder Malhi, Professor of Ecosystem Science, University of Oxford

As Professor of Ecosystem Science at the School of Geography and the Environment and Programme Leader in Ecosystems at the Environmental Change Institute, Prof. Malhi's research interests focus on interactions between forest ecosystems and the global atmosphere, with a particular focus on their role in global carbon, energy and water cycles, and in understanding how the ecology of natural ecosystems may be shifting in response to global atmospheric change. More recently his interests have expanded to include the impacts and limitation of tropical deforestation.

Piran White, Director of NERC BESS programme, University of York

Piran White carries out research on human-environment interactions, including the services and benefits we derive from nature and the links between ecosystems and human health. He has led projects in the UK, Australasia, South America and the Caribbean. His research frequently involves the use of interdisciplinary approaches alongside more traditional ecological research, working closely with economists and qualitative social scientists, and alongside policy-makers and practitioners. He is former Director of the NERC Biodiversity and Ecosystem Service Sustainability (BESS) programme, and is Co-Director of the Interdisciplinary Global Development Centre at the University of York.

Mike Morecroft, Principal Specialist Climate Change, Natural England

Dr. Morecroft is an ecologist, specialising in climate change impacts, adaptation and mitigation. He is a Senior Visiting Research Associate at Oxford University but his full-time job is at Natural England, where he leads their climate change work. He also contributes to developing their wider evidence base and conservation strategy.

Rebecca Asare, Nature Conservation Research Centre, Ghana

Dr. Rebecca Ashley Asare is the Director of Programs and Research at Nature Conservation Research Centre in Accra, Ghana. She is a continental thought-leader on REDD+ and climate-smart agriculture (CSA), an expert on cocoa farming systems, and she directs socio-ecological research on forest-agricultural landscapes. Rebecca is committed to achieving impacts through methods that connect research with collaborative processes, public-private initiatives, and community-based natural resource management approaches.

Gordon Conway, Professor of International Development, Imperial College London

Professor Gordon Conway is Professor of International Development at Imperial College London and Senior Advisor for the Malabo Montpellier Panel.

Katrina Brown, Professor of Social Sciences, University of Exeter

Katrina Brown is Professor of Social Science at the University of Exeter. Her research focuses on understanding how people and communities respond to change – how they perceive and understand change, embrace and resist change, and have different capacities to deal with change. Her work is especially concerned with the interface between poverty and environmental change. In 2016, she published the research monograph, ‘Resilience, Development and Global Change’ that proposes a re-visioning of resilience for international development. [More information](#)

El Niño Research Programme Projects

Promoting resilience of subsistence farming to El Niño events in Papua New Guinea: an integrated social-ecological approach

PI: Rebecca Morris, University of Southampton

This project aims to improve understanding of the social and ecological impacts of the 2015 El Niño event, exploring how natural ecosystems support people at times of need both directly and indirectly through services. Delivered in collaboration with the Binatang Research Centre, this work is expected to support actions to improve the resilience of PNG's rural communities to extreme weather and climate change. [More information](#)

Socio-ecological response and resilience to El Niño shocks: The case of coffee and cocoa agroforestry landscapes in Africa

PI: Yadvinder Malhi, University of Oxford

This study examines the social and ecological impact and response of cocoa and coffee crops, and their farmers, to the 2015-2016 El Niño event.

Impact of El Niño on malaria vector dynamics in Tanzania: observation, improvement and unleashing forecasting potential

PI: Matthew Baylis, University of Liverpool

The overall aim of this proposal is to detect a perturbation to the dynamics of a malaria vector triggered by the current El Niño, relate it to underlying weather conditions, and assess its impact on levels of clinical malaria disease. Demonstrating that the link between El Niño and malaria lies in the dynamics of the vector itself, and is triggered by weather, will enable control measures (against the vector) to be implemented earlier, or other mitigation measures to be undertaken.

Spatio-Temporal Dynamics of Forest Response to ENSO Drought (STEED)

PI: Mark Cutler, University of Dundee

The resilience of tropical forests to ENSO-induced drought has been investigated across a disturbance gradient in Sabah, Malaysia. Using a mixture of ground-based and remotely sensing methods, this project specifically looked at whether the logged forests are prone to changes in forest structure (diversity, liana infestation), mortality and ecosystem functioning during such events, compared to non-disturbed forests.

Monitoring the impact of the 2015/16 El Niño on rural water insecurity in Ethiopia: learning lessons for climate resilience

PI: Alan MacDonald, British Geological Survey

The 2015-16 El Niño event led to extreme drought across Ethiopia, resulting in widespread food and water insecurity, worsened by the failure of some groundwater sources. The project examines the different response of springs, wells and boreholes and how people reliant in each type of water source were affected.

The economic impact of El Niño related floods and drought on small and medium enterprises in Botswana, Kenya, and Zambia

PI: Declan Conway, Grantham Institute

This project is examining the links between drought and heavy rainfall associated with 2015-16's El Niño and disruption to business activities in three African capital cities. Disruption is caused by electricity outages in Lusaka, public water supply failure in Gaborone and floods in Nairobi. [More information](#)

Managing tropical agricultural ecosystems for resistance and recovery of ecosystem processes

PI: Edgar Turner, University of Cambridge

This project investigates the effect of the current El Niño on the biodiversity, ecosystem processes, and yield within oil palm plantations, as well as the potential to reduce the severity of these impacts through different land management strategies. [More information](#)

Unravelling the impact of El Niño on waterborne diseases in South America

PI: Jaime Martinez-Urtaza, The Centre for Environment, Fisheries and Aquaculture Science (CEFAS)

Previous works have suggested the introduction of Asian Vibrio populations in 1991 and 1997 in South America mediated by El Niño water. Based on these occurrences, this project has tested the hypothesis that the displacement of oceanic waters during El Niño events, allows vibrio populations to cross the Pacific. [More information](#)

Assessing ENSO-induced fire impacts in tropical rainforest ecosystems (AFIRE)

PI: Jos Barlow, Lancaster University

This project aims to enhance our understanding of the El Niño-mediated fires in Amazonian biodiversity and carbon stocks.

Impact of El Niño events on ecosystem services provided by Colombian mangroves

PI: Piran White, University of York

This project is concerned with quantifying the impacts of the El Niño on mangroves on the Caribbean coast of Colombia. It combines long-term empirical data on the status of the mangrove system, including water quality and fisheries, with qualitative data on the social impacts of El Niño and other environmental hazards.

Agricultural Climate Resilience to El-Niño in sub-Saharan Africa (ACRES)

PI: Andy Dougill, University of Leeds

The 2015-16 El Niño event caused extreme drought across southern Africa resulting in food insecurity amongst rural communities, whilst simultaneously increasing rainfall in parts of East Africa. In response, a number of farmers have adopted “climate-smart” agricultural practices. The ACRES project aims to better understand the effect of these Conservation Agriculture techniques on the resilience of smallholder farming systems to climate shocks.

Coping with El Niño in Tanzania: Differentiated local impacts and household-level responses

PI: Aidan Keane, University of Edinburgh

A household's ability to make lifestyle changes to cope with extreme weather events, such as El Niño, is heavily influenced by their individual, institutional, and environmental context. This project investigates the impact of a specific natural resource management institution, Wildlife Management Areas (WMA's), on communities' ability to adapt to El Niño.

Building Resilience in Ethiopia's Awassa region to Drought (BREAD)

PI: Jo Smith, University of Aberdeen, Institute of Biological and Environmental Science

El Niño exacerbated droughts in sub-Saharan Africa has resulted in food insecurity across the region. The BREAD project attempts to quantify this impact, both on local agriculture and on farmer livelihood within the Awassa region of Ethiopia, while assessing potential interventions to improve resilience of these food systems (mainly soil management).

Resilience of Tropical Forest Ecosystem Processes to the Interactive Effects of El Niño and Forest Disturbance

PI: Robert Ewers, Imperial College London, Life Sciences

While more than a third of the world's tropical forests have been logged, research suggests that key ecosystem functions are surprisingly resilient to such disturbances. The abundance, diversity, and composition of the groups carrying out these functions, however, are shifting, with invertebrate numbers declining by up to 50% and generalist vertebrates filling the gaps. This raises concerns about the vulnerability of these processes to future stresses, as vertebrates threat status is rising as a result of their susceptibility to various human pressures. One such stress, which this project investigates, is the extreme drought associated with the El Niño, focussing on the impact of this event on the resilience of ecosystem function to logging; specifically leaf litter decomposition, seed predation and dispersal, and invertebrate predation.