



**BRITISH  
ECOLOGICAL  
SOCIETY**

# **RESILIENT LANDSCAPES FOR PEOPLE, NATURE AND CLIMATE SYMPOSIUM**

**24-25 JUNE 2024**

**UNIVERSITY OF BIRMINGHAM**

**BOOK OF ABSTRACTS**

## Registration closes Friday 7 June, 17:00 BST

### ORAL PRESENTERS (in order of talk)

#### SESSION 1: SETTING THE SCENE, UNDERLYING PRINCIPLES AND WAYS OR WORKING

##### **Diana Pound, Dialogue Matters**

##### Landscape governance and justice - Enabling Positive and Resilient Landscape Change

This presentation will: highlight three horizons for landscape futures ( H1 what is waning in relevance, H2 what will bridge to the future and H3 a hoped-for future); explore the role of landscape governance and justice to guide the way; highlight the need for power awareness and sharing for better outcomes for all, and introduce the concept of procedural justice in landscape decision making. The presentation is based on previous and current research around landscape governance and participation as well as decades of practitioner knowledge.

##### **Elizabeth Hancocks, Natural Resources Wales**

##### Nature Networks in South Central Wales

The South Central Area Statement is developing multiple resilient landscapes for a highly diverse and fragmented region (127,600 ha in size) yet still hosting internationally important sites and species for nature conservation. Through the mechanism of the Area Statement and the NRW Resilient Ecological Network practitioners guidance a cohesive set of landscapes, or Nature Networks, and partnerships of public bodies, eNGOs and communities are using the evidence base and securing funding to deliver nature recovery on the ground. The poster will present two Nature Network case studies, the Vale of Glamorgan coast (6500 ha in size) and the North Cardiff Woodlands (3000 ha in size), highlighting their priority ecosystems, multiple benefits such as shoreline management and river restoration and how they have successfully secured Welsh Government funding. The presenter would also be happy to focus on one of these for a poster and/or discuss any other ecosystems and networks in South Central Wales with symposium delegates.

##### **Dr Ruth Hall, Natural England**

*Co-authors: Michael Knight (NE); Zachary Dickeson (NE); Will Cole (NE); Lucy Hurford (Defra); Richard Jones (Defra)*

##### The Environment Act Habitat Target and Landscape Projects

The Environment Act habitat target is to create or restore 500,000 ha of a range of wildlife-rich habitats outside of protected sites by 2042. The purpose of this talk is to explain what will count towards this target, including what is meant by wildlife-rich habitat, and that creation and restoration are interpreted as increasing the extent,

rather than improving the condition, of existing wildlife-rich habitat. The reporting requirements, including using spatial (polygon) data, will be explained.

Whilst it is not a requirement of the target, there is value in creating and restoring habitat adjacent to existing habitat patches to create large areas of habitat. Such sites are more resilient, more able to function naturally, more likely to incorporate a range of habitat types and more easily colonised by species. New analysis of existing patch sizes and what might be possible where will be presented. It is hoped that by sharing details of the target, its importance for nature recovery, the ambition to create large habitat patches, and the evidence to support where these may be possible, we can facilitate landscape scale projects that can contribute to the target and collect the relevant data for reporting.

### **Jack Bloodworth, Scottish Government**

*Co-authors: Professor Sallie Bailey, Scottish Government, Alison Smith, Environmental change Institute, University of Oxford*

#### Living labs and pathways to multifunctional landscapes in Scotland

As pressure on land intensifies, there is an urgent need for more multifunctional landscapes that balance competing objectives: production of food, fibre and water, carbon sequestration, climate change adaptation, nature recovery, housing, energy and recreation. This brings complex challenges and trade-offs that must be addressed through a participatory governance process involving all stakeholders. To inform these processes, stakeholders need good maps and decision-support tools so they can make robust and transparent decisions. We are developing a systematic approach for bringing together existing spatial data that identify potential opportunities for nature recovery, nature-based solutions and sustainable production of food and fibre in different locations in the landscape. We are testing this at four case study sites based on research facilities in Scotland, ranging from productive lowland through to upland livestock farms. Three pathways are being explored: sustainable intensification, agro-ecology, and a combined approach. We are assessing the outcomes of each pathway for 18 ecosystem services. The intention is that this methodology can be used as the starting point for stakeholder discussions, bringing in local knowledge. We will also consider the wider context of living labs in Scotland, priorities and opportunities.

### **Dr Gavin Siriwardena, British Trust for Ornithology**

#### Monitoring biodiversity impacts of landscape-scale and long-term experiments: challenges and solutions

Monitoring is a critical element of any well-designed long-term or landscape-scale intervention programme for biodiversity. Even with the best-evidenced management approach and the soundest theoretical basis, external influences or scaling effects can make the consequences of interventions unpredictable. Monitoring is both essential to measure effects and can feed evidence back into design to refine management in practice.

However, monitoring in practice can be challenging. Issues include balancing cost and data quality, ensuring sustainability in the long term, identifying counterfactuals that support the inference that is required, and timeliness of reporting.

This presentation will highlight these issues and propose solutions, including assessing the potential role for citizen science. Volunteer monitoring can play a key role in providing counterfactuals in particular and may also be suitable for surveying focal sites. It also provides potential interfaces with public engagement and opportunities to involve local communities with the operation of managed sites. However, there are trade-offs and citizen science may not be cost-effective.

### **Dr Andrew Stringer, Forestry England**

#### Nature recovery in the nation's forests managed by Forestry England

Forestry England care for more land and trees than any other organisation in England, shaping landscapes for people, wildlife and timber. Covering 250,000 hectares, the nation's forests are a diverse mosaic of different habitats, from the sitka spruce dominated Kielder forest, through to the diverse habitats of the New Forest.

This talk will focus on the ambitions within our Biodiversity Plan. These include traditional methods of nature restoration:

- (1) The delivery of favourable condition across 75% of 68,000 ha of Sites of Special Scientific Interest.
- (2) Increasing the proportion of open habitats, such as heathland and peatland, from 16.8% to 21.1%.
- (3) Restoring 43,000 ha of plantations on ancient woodland sites to >80% native tree species.

The talk will also discuss how we are pushing innovation through:

- (4) Species Recovery – the active restoration of ecosystem engineers and keystone species to our forest landscapes, including the reintroduction of white-tailed eagle, pine marten, and beavers.
- (5) Wild Areas – these aim to restore natural processes, from utilising livestock as an ecological replacement of extinct species, through to fungi, flora, and invertebrate whole-community translocations.

I will finish by discussing measures of success, in particular our use of eDNA and bioacoustics.

### **Emma Martin, WWF**

#### Wholescape: a new framework for investment in nature, climate and people

This talk will present WWF's approach to delivering for nature, climate and people across the boundaries of land, rivers, coasts and seas – the 'Wholescape' approach – including its early implementation in Norfolk, Pembrokeshire and the Forth Basin.

The Wholescape approach has been developed in response to three demands.

First, the demand for joined-up spatial thinking. It is well-recognised that natural processes operate in complex joined-up ways, at scale. Effective nature recovery requires interventions across and between systems that cover land, rivers, coasts and seas – hence 'Wholescape'.

Second, the demand for multiple outcomes. There are many demands on our environment, characterised by WWF as the ‘Triple Challenge’ of addressing nature, climate and human needs. Wholescape attempts to address tradeoffs, and maximise synergies, between these different outcomes at scale.

Third, the demand for ‘landscape-scale’ investment opportunities. As the private sector continues to develop responses to the climate and nature crises, emphasis is expanding from retrospective carbon-focused offsetting, towards more holistic, future-facing action. This includes a focus on landscape-scale investments that deliver multiple benefits for nature, climate and people through credible governance frameworks.

WWF believes Wholescape can help meet all these demands. This talk will present what we have achieved so far.

### **Dr Jenny Hodgson, University of Liverpool**

*Co-authors: Lorna Drake, Natural England; Petula Neilson, Natural England; Paul Nolan, Mersey Forest; Nick Sellwood, Woodland Trust; Thomas Smart, Natural England*

#### How can transdisciplinary landscape projects create the ecological connectivity that will be needed under climate change?

Ecological connectivity is a key ingredient of resilience, and creating connectivity is high on the agenda of most landscape scale projects for nature recovery. Worldwide, there are now many ‘connectivity conservation’ projects our community can learn from. Many take a transdisciplinary and participatory approach, and the role of metrics and models of connectivity has been perhaps surprisingly modest, so far. While considering connectivity is almost a given, opinions will differ on exactly when and how to bring connectivity into the decision-making process. We will explain why different approaches can be attractive in different circumstances. For example, we will contrast the connectivity that allows people to access nature, with that allowing species to adapt to climate change. We will hopefully offer inspiration for future projects by showing how quantitative modelling can be integrated with more qualitative considerations. We will use two very large-scale and long-term projects as exemplars: the Northern Forest and Natural Course. These projects, focussed on tree planting and on river basin resilience respectively, have gone further than most in modelling connectivity, and have put ecosystem service benefits to people at the heart of their agenda. They are thus reconciling tensions between different goals for the landscape.

### **Dr Julia Newth and Dr Olly van Biervliet, WWT**

*Co-authors: Jonathan Reeves; Hannah Robson & Sarah Davies*

#### The role of wetlands for increasing landscape resilience

Wetlands increase the resilience of people and nature to environmental change. They reduce flood and drought risk, capture carbon, boost biodiversity and enhance wellbeing - WWT aims to restore 100k ha of wetlands in the UK and improve 1 million ha globally by 2050. However, many questions need to be answered. WWT has

already addressed high-level questions like ‘where would they go?’ and ‘who will fund it?’ - firstly, with a mapping exercise that identifies high-potential restoration areas, and second, with innovative funding to create 250 ha of saltmarsh. The latter will form a testbed for the detailed and multidisciplinary research required for landscape-scale wetland restoration. This will build on past WWT projects on the wide-ranging benefits of wetlands. For example, we have studied the value of ponds and floodplain meadows for carbon capture and terrestrial biodiversity (‘Flourishing Floodplains’), wetland connectivity and threatened species (‘Eelscapes’), and natural flood management (NFM) for flood and drought resilience. On social dimensions we are learning how to build community flood resilience through co-design of NFM interventions (‘‘Slough Sponge City and Richmond Community Bluescapes’’), and have explored the wellbeing value of nature prescriptions at restored saltmarsh (‘‘Blue Prescribing’’). This talk will introduce this work.

**Dr Tim Graham, RSK Biocensus**

*Co-authors: Natalie Bryce, Jon Davies*

### Responsible Bodies and Conservation Covenants: New legal approaches to support the creation of resilient landscapes

Conservation covenants became active in English law on the 30th September 2022. This was due to their inclusion within the Environment Act 2021 as a new mechanism so that legal agreements to restrict negative action or oblige positive action on land owners and managers for specified lengths of time into the future no matter who owns the land.

Principally to allow a robust and legally compliant system to be created to enable Biodiversity Net Gain, it must ensure public good is delivered for heritage and/or nature conservation on land, securing it with the land title until a specified end date, and enabling confident investment should it be involved in nature finance.

RSK Biocensus is the first Responsible Body approved by Defra to cover both nature conservation and heritage agreements. Within this new regulatory regime we will explore the current strengths of weakness of the fledgling system from the perspective of a private company and how this role can have a place enabling resilient landscapes. We will also explore the state of play inters of what is currently possible, what there is clear appetite for, and what the future could hold with the right adaptive or anticipatory regulation in England.

## **SESSION 2: UPLAND AND HEADWATERS SYSTEMS**

**Dr Jan Dick, UKCEH**

*Co-authors: Simon Rolph UKCEH; Christopher Andrews UKCEH*

### Connecting people and nature to ensure resilient landscapes

Human health and nature are intertwined in complex ways. Understanding these two domains is crucial for ensuring resilient landscapes for people and nature, now and into the future. The digital age has brought forward the possibility of integrating data

sources and managing both domains in new resilient ways. As a case study in the Biodiversity Digital Twin project (BioDT) we have created a prototype digital twin (pDT) linking recreational potential in the Cairngorms National Park, Scotland with the knowledge of where the biodiversity lives across the whole national park. Most of the rewilding is occurring in the uplands and headwater making these places a beacon for recreationists and tourists. New monitoring approaches are vital to ensure durable local and visitor communities and thriving biodiversity. The pDT enables locals and tourists to find places to visit that meets their physical and mental needs, highlights the biodiversity they may find there and gives them the opportunity through citizen science technology to enhance the knowledge of land and park managers offering new effective monitoring and evaluation approaches. The project aims to empower society by generating actionable knowledge.

**Alvaro Roel Bellot, Centre for Environmental Policy, Imperial College London**

*Co-authors: Matthew Clark (Centre for Environmental Policy, Imperial College London, London, UK); Arundhati Jagadish (Nature Conservation Foundation, Bengaluru, India); Morena Mills (Centre for Environmental Policy, Imperial College London, London, UK)*

Centre for Environmental Policy, Imperial College London

United Kingdom nations have ambitious ecosystem restoration plans, and landholders creating mixed native woodlands are key to their delivery. Nonetheless recent surveys show that generally landholders do not intend to create woodland. Thus, better understanding what drives landholders to engage in woodland creation is critical for meeting the UK's environmental goals. Building on Diffusion of Innovations theory, we survey landholders in and around the Cairngorms National Park in Scotland to quantify the effects of individual, contextual, and initiative characteristics on mixed native woodland creation decisions. We find that landholders are more likely to engage in mixed native woodland creation if they believe it is compatible with their current land use practices; or that it will increase wildlife habitat or soil quality. Landholders creating mixed native woodland were more likely to perceive interventions to control herbivore damage to new woodland as difficult to understand, maybe due to their experience in woodland creation. Our results suggest policies could increase mixed native woodland creation uptake by: emphasising its compatibility with other land uses such as agriculture (i.e. agroforestry) or some types of hunting; facilitating access to evidence-based comparisons of the environmental benefits of different woodland types; and improving support for tasks like fencing.

**George Porton, University of Leeds**

*Co-author: Dom Spracklen (University of Leeds); Cat Scott (University of Leeds); Robyn Wrigley (University of Leeds)*

Monitoring ecological restoration in the UK uplands: an example from the Wild Ingleborough project

The Wild Ingleborough project is a project in the Yorkshire Dales aiming to restore habitats at a landscape scale to create a wilder future in the area. The three major

management interventions have been to change sheep grazing to cattle grazing, tree planting and peat restoration, however, over time it is hoped that natural processes will play an increasing role in shaping the landscape. The purpose of this talk will be to outline the monitoring that we do, how we designed it, the methods used and some of the challenges we have experienced. The monitoring carried out is broad and covers both biodiversity and ecosystem services. We also have early results to present on how changing from sheep grazing to cattle grazing or leaving a site ungrazed affects ground vegetation and the natural colonisation rate of trees. Our analysis on ground flora shows how species richness and frequency of different species has changed by changing the grazing. The natural colonisation results highlight the factors limiting tree colonisation and we have been able to use this to make predictions as to where natural colonisation may be expected in the future and at what density.

### **Lee Schofield, RSPB/Lowther Estate**

#### Wild Haweswater - For Wildlife, Water and People

I will give an overview of the work at Haweswater, one of England's most ambitious and high-profile ecological restoration projects, a partnership between the RSPB and water company United Utilities. I have been the RSPB site manager at Haweswater for the last 11 years, and have overseen the project's integrated programme of river, bog, meadow and woodland restoration. The work at Haweswater has shown how sustainable upland farming can be comfortably and economically integrated with nature recovery, delivering a broad range of societal benefits. The work at Haweswater has gained particularly notoriety as a result of my book, *Wild Fell: Fighting for Nature on a Lake District Hill Farm*, which alongside a range of other communication tools has reached a wide audience. The work at Haweswater has had a strong ripple effect and is now at the heart of multiple landscape scale restoration initiatives. A key partner is the Lowther Estate, who I will be moving to work for from April this year, leading on a 14,000ha landscape recovery project. My presentation will bring our stirring, real-life example of large scale ecological restoration to life.

### **SESSION 3: LOWLAND AND RIVERS SYSTEMS**

#### **Dr Bruce Winney, National Landscapes Association & Professor Kate Heppell, The Chilterns Conservation Board and QMUL**

*Co-author: David Hocom, National Landscapes Association*

#### Restoring nature in the calcareous landscapes of southern England: land use opportunities, co-benefits and trade-offs

The calcareous landscapes of southern England, comprising grasslands, woodlands, mosaic habitats, chalk streams and aquifer-fed wetlands, are culturally important and globally significant for wildlife. They are central to protecting 30% of land for biodiversity and halting species decline by 2030.

BIG CHALK is a big idea – linking nature conservation and related activities across 19% of England's land area and demonstrating that landscape connectivity is possible at a scale that increases ecological resilience and enables wildlife to respond to climate change.



We use spatial land-use data to model the potential for the BIG CHALK programme to contribute to the 30by30 target, with a focus on two constituent and adjoining National Landscapes – the Chilterns and the North Wessex Downs.

We highlight the opportunities and likely co-benefits and trade-offs arising from meeting the related drivers of protecting nature and delivering ecosystem services, including sustainable food production.

We demonstrate the potential for strategic conservation initiatives like BIG CHALK to align with bottom-up, participatory modes of delivery such as farm clusters, contributing to a Nature Recovery Network for England.

We discuss the importance of scale in monitoring nature's recovery through a case study of Tracking the Impact – a volunteer-led survey programme.

### **Professor Hans de Kroon, Raboud University**

#### Living Labs for biodiversity recovery in the Netherlands: scaling up from successes in the past

Biodiversity conservation requires a landscape-scale approach. In the riverine farmland area of the Ooijpolder (NL), landscape complexity has been restored over the last 15 years by installing hedges, flowerstrips, ponds and dry-wet gradients. This was the outcome of a concerted effort between nature conservation organisations, farmers and governmental institutions, resulting in 30-year contracts with farmers for the maintenance of the natural areas on their properties. In an interdisciplinary research project (“Living Lab Ooijpolder”), we are investigating the ecological effects of this restoration effort, why farmers agreed to contribute, and the process by which the arrangements were realized.

The research activities are developed trans-disciplinary, in close interaction with farmers, nature conservation organisations and others. Our research is retrospective as well as prospective. Together with the farmers, we are exploring how farm activities can further improve biodiversity for example by experimenting with herb-rich pastures.

The Ooijpolder case shows how a dialogue based on mutual respect and a constructive input from all parties can make significant steps towards landscape restoration. From interactive research on the ecological (soil, plant, insects), social, governance, economic and legal processes involved, we hope to decipher the key values for success that can be transferred to other regions.

### **Dr Antonia Eastwood, RSPB**

*Co-authors: Tatiana Chapman (RSPB); Bethany Tomlinson (RSPB); Alex Whittle (RSPB)*

#### Improving outcomes for wildlife in highly productive landscapes - where to start?

We describe a participatory research project whose initial aim was to facilitate the production of a conservation landscape vision map with a farm cluster (Ely Nature

Friendly Farming Zone) in the highly productive farmland of the Cambridgeshire Fens, incorporating both farmer and scientific knowledge. During the first workshop, where discussions moved from individual farm practices to greater collective action across the landscape, farmers raised numerous issues with the project aim, including the dispersed and fragmented distribution of participating farms in the cluster and the high opportunity costs associated with high value agricultural soils when compared to agri-environment schemes. These initial farmer-led discussions led to the adaptation and reframing of the initial project aim. Despite this, seemingly, initial set back, the participatory nature of the project enabled the development of a 10-year farmer-led strategy for the cluster which resulted in improved commitment and buy-in from the farmers and helped foster new relationships with other landowners, organisations and scientists working in the Fens. In this talk, we take the opportunity to present our preliminary data from the workshops and interviews with farmers to describe the challenges, opportunities, and benefits of building landscape collaborations across such unique, productive farming landscapes.

### **Professor Richard Pywell, UKCEH**

*Co-authors: Jonathan Storkey (Rothamsted Research); Sam Cook (Rothamsted Research); James Bullock (UKCEH); Niall McNamara (UKCEH), Jo Staley (UKCEH), Ben Woodcock (UKCEH)*

#### Developing nature positive, carbon neutral farming systems – the AgZero+ programme

Agriculture is a major driver of biodiversity loss and an important source of greenhouse gas emissions. Innovative farming systems are required to minimize trade-offs between plentiful food production, reduced emissions and protecting and enhancing biodiversity. AgZero+ is a strategic NERC and BBSRC research programme that is working with farmers and industry to co-develop, measure and scale-up these innovations using a tiered approach. We have combined the latest data science methods to link farm management data with high resolution earth-observation data and models to provide rapid, whole farm system audits of food production efficiency, pollution risk and impacts on biodiversity for 100s of farm types across landscapes. This is coupled with an online social science survey to explore attitudes and barriers to innovation and changing practice. We have paired 20 of the most innovative farms with 20 nearby business as usual farms to undertake direct measurements of carbon budgets and emissions, pollution risk and biodiversity using a combination of field survey and AI-driven sensor technology. Finally, on a small number of farms we are undertaking manipulative plot- and field-scale experiments of recent innovations co-designed with farmers. This tiered approach is identifying evidence-based pathways to achieve nature positive, carbon-neutral farming systems.

### **Dr Julie Ewald, Game and Wildlife Conservation Trust**

*Co-authors: Megan Lock Game & Wildlife Conservation Trust; Niamh McHugh Game & Wildlife Conservation Trust; Roger Draycott Game & Wildlife Conservation Trust*

## Farmer Clusters: farmer-led landscape conservation, the UK story, Part one.

Farmers and land managers are working across the UK at a landscape-scale in Farmer Clusters. This is a bottom-up approach allowing farmers to work together, led by one or more “lead farmers” and helped by a ‘facilitator’, to collectively deliver benefits for soil, water, and wildlife at scale. The Game and Wildlife Conservation Trust (GWCT) has been involved with the farmer cluster concept from the very beginning. GWCT-involved projects, covering at least 1000 ha, have illustrated the possibility of farmland bird recovery at this scale. We will review how clusters have evolved from those beginnings. We will then illustrate the art of the possible using the example of one cluster - The Martin Down Farmer Cluster, consisting of 15 conventional arable and mixed farms on well-drained chalk, covering a contiguous area around the Martin Down National Nature Reserve. Together with the NNR, the cluster covers an area of 5500 ha in total. Following on from Farmer Clusters, farmers across several clusters have joined forces in a cooperative – the Environmental Farmers Group – to deliver nature recovery and climate change mitigation. Working collaboratively, EFG allows farmers easier access to the marketplace of biodiversity net gains, nutrient offset markets and carbon emissions reduction.

## **SESSION 4: LINKED LAND, ESTUARIES AND COAST/MARINE SYSTEMS**

### **Jo Bayes, Environment Agency**

*Co-author: Mike Nelson - Environment Agency*

#### Applying a Natural Capital Approach at a Source to Sea Scale: The Blackwater & Colne Case study

Our environment is under increasing pressure from the climate and biodiversity crises, alongside a growing population. Pressures and impacts upstream in a catchment affect the health of the natural capital assets, and the potential provision of ecosystem services downstream in our estuarine and coastal waters. However due to siloed and disconnected monitoring, policy and funding frameworks, catchments are not widely managed with these considerations.

By applying a natural capital approach across a source to sea scale we are able to work in a more holistic, integrated and interdisciplinary way across this land-sea interface, resulting in an improved environment for people, nature and the economy.

As part of Defra’s Marine Natural Capital and Ecosystem Assessment (mNCEA) programme and working in partnership with EA area team colleagues, The University of Essex, Plymouth Marine Laboratory, Natural England, JNCC and Cefas the Blackwater & Colne (Essex) case study will focus efforts on using both existing and new data to test how a natural capital approach can be applied across a source to sea scale to bring practical and actionable outcomes to remove, reduce or mitigate pressures that result in a climate and nature positive catchment that will benefit people for generations.

**Jens-Arne Subke and Malina Modlich, University of Stirling**

*Co-authors: Dr Peter Hunter, University of Stirling; Evangelos Spyarakos, University of Stirling; Armando Marino, University of Stirling; Heather Price, University of Stirling*

### The Forth Environmental Resilience Array (Forth-ERA) – monitoring environmental systems at scale

We will introduce the Forth Environmental Resilience Array (Forth-ERA), a full catchment-scale environmental monitoring approach being delivered for the Forth Valley catchment, of around 6500 km<sup>2</sup>. The benefits and challenges of monitoring water and environmental systems across the entire continuum, from headland waters through peatlands to the marine setting, will be discussed. Our ambition is to create a digital twin that can be replicated internationally at scale, to transform environmental management, partnership working and resilience planning.

Forth-ERA employs a combination of in-situ sensors, satellite data and modelling approaches, to build a unique evidence base and a single point of access to near real-time data on water levels, flow, and quality, as well as soil moisture, GHG flux, meteorological data, air quality and biodiversity.

We work in partnership with landowners, regulators, practitioners, local authorities, business and the water industry to co-create an asset of environmental knowledge, with impacts being made in multiple projects across the region from peatland restoration to marine spatial planning. The challenges of deploying sensors in the right location and gathering and validating data using telemetry and in-situ methods will be described.

#### **Professor Rick Stafford, Bournemouth University**

*Co-authors: Zach Boakes, Bournemouth University; Charles Blair Seas the Opportunity; Fiona Trappe Seas the Opportunity*

### Novel marine ecosystems can aid nature recovery, net zero and levelling-up targets

Understanding typical agricultural landscapes are not ‘natural’ is becoming more accepted by the general public. Yet the marine environment has greatly changed from its natural state, for example, with large areas of oyster beds being removed from the North Sea due to fishing, leaving soft sediment behind. Highly diverse marine systems require structural complexity, missing from many soft sediment habitats, and the addition of complexity to soft sediment increases biodiversity in the area. Blue economy opportunities, including floating or static offshore wind and low impact (seaweed and mollusc) aquaculture can increase complexity, and mounting evidence suggests they can also increase biodiversity, especially if structures are eco-enhanced (e.g. through artificial reefs) to maximise biodiversity. In this presentation we will explore how novel seascapes can be formed with co-located activities. These activities can (a) provide nature recovery, potentially with areas classified as OECMs (other effective area-based conservation measures) (b) contribute to food production or carbon sequestration (e.g. in the case of algae aquaculture) and (c) provide work, industry and regeneration for seaside communities, often those with high levels of deprivation following the collapse of local fishing industries. We also highlight some of the regulatory problems of co-location and potential solutions to these.

## **Ben Porter, Tir Canol project**

### Landscape scale restoration in the heart of Wales: lessons from the tumultuous journey of 'Summit to Sea'

Summit to Sea was a controversial landscape-scale project in mid Wales that failed to engage with local rural communities and sought to impose narratives of rewilding on this region of mid Wales. Ben Porter offers some insights from the project's journey into what is now an exciting initiative called Tir Canol, which means 'middle ground' in Welsh. This new landscape-scale initiative emerged from the ashes of Summit to Sea, formed through years of hard work rebuilding trust with local communities and carrying out a careful process of co-design. The project is now securing funding and delivering against its co-designed vision with those same communities, and provides an important example of achieving restoration at scale across a complex cultural landscape.

## **POSTER PRESENTERS**

### **Hieko Baltzar**

*Co-authors: Lee-Ann Sutherland and the LUNZ Hub consortium*

### Introducing the Land Use for Net Zero Hub

### **Debbie Bassett, NatureScot**

*Co-author: Dr Clive Mitchell, NatureScot*

### Managing land for multiple benefits and multiple risks

### **Carlos P E Bedson, Natural England**

*Co-authors: Ben L. Payne, Natural England; Humphrey O.P. Crick, Natural England*

### Designing nature recovery networks from a multi-species perspective

### **Damon Bridge, RSPB**

*Co-authors: Farming and Wildlife Advisory Group South West*

### Landscape flux and flow - restoration and reconnection within Somerset's Levels & Moors

### **Julia Casperd, Harper Adams University**

*Co-authors: Casperd, J.M.; Monaghan, J.; Jeffery, S.; Kirby, S.; Natalio, A.; Huang, I.; Behrendt, K.; Crockford, L.; Covarr, N.; O'Hagan; Beacham, A.; Roberts, J.; Clunie, B.; Adams, J.; Boe, J.; England, M.; Williams H.*

Sustainable management of farmed lowland peat as part of a functioning landscape mosaic

**Katerina Chernyuk, University College Cork and University of Plymouth**

*Co-authors: Dr. Markus Eichhorn, Dr. Mary O'Shaughnessy, Dr. Thomas Murphy, Dr. James Buckley*

Restoring Atlantic Oak Forests - Strategies and Perceptions in Great Britain and Ireland

**Nicholas A Cork, University of Birmingham**

*Co-authors: Rachel S Fisher (University of Birmingham) ; Neil Strong (Network Rail Ltd) ; Emma JS Ferranti (University of Birmingham) ; Andrew D Quinn (University of Birmingham)*

Sharing Spaces: Transport Networks as Ecological linkages

**Charles Cunningham, University of York**

*Co-authors: Colin M Beale, University of York; Diana E. Bowler, CEH; Michael J.O. Pocock, CEH; Piran C. L. White, University of York; Robin Hutchinson, CEH; Lisa Emberson, University of York; Merryn Hunt, CEH; Lindsay Maskell, CEH; Jane K. Hill, University of York*

Habitat connectivity benefits most broadleaf-associated taxa, but benefits for individual species vary greatly

**Susan Evans, Hong Kong Polytechnic University**

*Co-authors: None*

Accelerating regional circular bioeconomy transformation by cocreation as guided by twelve design considerations

**Joanna Furtado, University of Exeter**

*Co-authors: Regan Early, University of Exeter; Matt Lobley, University of Exeter; Julia Aglionby, University of Cumbria; Rosie Hails, National Trust*

Co-design to improve biodiversity outcomes on grazed upland common land in the Lake District

**Heather Gilbert, National Forest Company**

Co-author: Sam Lattaway, National Forest Company

The high-hanging fruit: using agroforestry to maintain landscape-level habitat creation beyond the easy wins

**Cameron Goodhead, Durham University**

Co-authors: *Dr Rebecca Senior*

Rewilding as an approach for increasing microclimate diversity across landscapes

**Anne Harrison, WWT**

Co-authors: *Leanne Tough, WWT; Ian Dickie, eftec; Allegra Naldini, eftec*

Restoring and creating 100,000 ha of UK wetlands - exploring the potential

**Jodie Hartill, Natural England**

Co-authors: *Mike Morecroft; Tamsin Lockwood; Jessica Elias; Mel Stone; Mel Spiers; Nick Izard; Emily Mason; Hannah Kemp; Becky Davess. TBC*

Nature Based Solutions at the Landscape Scale, an overview

**Jack Hatfield, Leverhulme Centre for Anthropocene Biodiversity, University of York**

Co-authors: *Jane K Hill; Chris D Thomas*

FAR-sighted conservation for a dynamic Anthropocene

**Professor Chris Hill, GeoData Institute, University of Southampton**

Co-authors: *Louise Tricklebank University of Southampton; Dr Mike Clarke Visiting Prof University of Southampton*

Review and Evaluation of Large-scale Conservation Initiatives (LSCI) in the UK and Europe

**Robert Kenward, European Union HORIZON PRO-COAST project (#101082327)**

Co-authors: *Prof Ann-Marie Nienaber (Coventry University); Dr Julie Ewald (Game & Wildlife Conservation Trust); Dr Ben Kenward (Uppsala University); Stratos Arampatzis (Tero Ltd); Olympia Papadopoulou (Tero Ltd)*

PRO-COAST: helping people to transition for nature and climate

**Fairlie Kirkpatrick Baird, NatureScot**

*Co-author: Lydia McGill, NatureScot*

Mapping resilient landscapes: putting 30x30 on the map in Scotland

**Kate Lacey, National Parks England**

*Co-authors: Andrew Herbert, Lake District National Park Authority; Dr Briony Fox, North York Moors National Park Authority*

The Nature Recovery Vision for English National Parks

**Clare Lawson, The Open University**

*Co-authors: Caroline O'Rourke, The Open University; Emma Rothero, The Open University*

The development of a 20-year strategy for the restoration of species-rich floodplain meadows in the Windrush valley

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Nature Recovery and Organic No Dig Food Production at Ewhurst Park

**Manjul Panwar, School of Environmental Sciences, Jawaharlal Nehru University, New Delhi, India**

*Co-authors: Prof. Usha Mina, School of Environmental Sciences, Jawaharlal Nehru University, New Delhi, India*

Mapping Green Assets: Evaluating the State of Urban Green Spaces in Delhi

**Finlay Ratcliff, National Forest Company**

*Co-authors: Sam Lattaway, National Forest Company; Dr Heather Gilbert, National Forest Company*

Knowing what's out there: Using advanced spatial data to re-baseline forest cover in the National Forest



### **Shalini Rawat, Graphic Era Deemed to be University**

*Co-authors: Dr. VP Uniyal : Wildlife Institute of India, Dr. Pradeep Kumar Sharma : Graphic Era Deemed to be University, Dr. Suman Naithani : Graphic Era Deemed to be University*

Safeguarding Sacred Lands: The Van Panchayat Approach to Biodiversity Conservation in the Kailash Sacred Landscape, Uttarakhand India

### **Jenny Shepherd, Cranfield University**

*Co-authors: Dr Daniel Simms (Cranfield University); Prof Ron Corstanje (Cranfield University); Ben McCarthy (National Trust)*

Measuring Resilience and Early Warning Signals of Critical Slowdown in Forest and Grassland Habitats using Time-Series Satellite Data

### **Alastair Simmons, Taskscape Associates Ltd**

*Co-authors: Niamh McHugh, Game and Wildlife Conservation Trust; Graham Begg, James Hutton Institute (info@taskscape.org.uk)*

Advanced Farmer Clusters: Network-based landscape conservation, Europe and beyond. Part two.

### **Molly Tuckey, Newcastle University**

*Co-authors: Elisa Lopez-Capel - Newcastle University; Glyn Jones - Fera; Jen Clements - Forest Research*

A preliminary review of the impact of biodiversity payment schemes on non-woodland tree health and survival, including expert interview analysis

### **Alexa Varah, Natural History Museum**

*Co-authors: Adriana De Palma, NHM; Lucy Robinson, NHM; John Tweddle, NHM.*

The National Education Nature Park: improving biodiversity, wellbeing and climate resilience across England's education estate.

### **Martin Varley, RSPB**

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The Big 5 – What should upland nature restoration projects focus on to be successful?

## **Robyn Wrigley**

*Co-authors: Francesca Darvill (University of Leeds), Dominick Spracklen (University of Leeds), Robert Mills (University of York), John Crawford (Woodland Trust), Catherine Scott (University of Leeds), Pippa Chapman (University of Leeds)*

Monitoring the impacts of woodland creation in an upland landscape in the Yorkshire Dales.

## **Alix Zelly, RSPB**

*Co-authors: Susan Baker (Cardiff University); Euan Bowditch (University of Highland and Islands); Sheena Carlisle (Cardiff University); Tom Finch (RSPB); Melissa Minter (RSPB); Natasha Constant (RSPB)*

Local stakeholder values and preferences for treescape expansion in UK uplands