

LANDSCAPE-SCALE EXPERIMENTS AND LIVING LABORATORIES

Report of Proceedings at the Stakeholder Workshop Held 21 June 2023 at the British Ecological Society in London

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EXECUTIVE SUMMARY

The Ecological Continuity Trust (ECT) and British Ecological Society (BES) hosted an interactive workshop on 21 June 2023 in London that brought together 40 of the UK's major landowner organisations involved in landscape-scale transformation projects. The main purpose of the workshop was to engage those key organisations in dialogue around community building and best practice for the design and implementation of landscape-scale projects which the workshop agreed should include all landscape-scale experiments, wholescape projects and living laboratories. In the process, an understanding was gained of existing and planned studies at the landscape scale, the barriers and constraints faced by landowners, and the challenges in analysing data and making it available to the widest possible audience of end users.

The UK's major landowning organisations are engaged in a very wide variety of projects at different landscape scales and for a range of durations varying from one year to indefinite. They incorporate varying degrees of experimentation or adaptive management. Several entail monitoring only. Challenges to success include lack of access to key skills and suitable partners, the limited availability of best practice and minimal quality assurance with respect to evidence of approaches that work and why.

Numerous dispersed resources, both UK and international, exist around good practice, though not all are readily accessible and significant gaps remain in a coordinated UK effort to transform landscapes reliably and reproducibly with trusted monitoring and verification methodologies. The workshop concluded that UK landowners and linked research, finance and policy communities could benefit from:

- Community-building through further in-person or online meetings;
- The creation of an online portal or resource that facilitates improved sharing of information;
- Preparatory work to develop best practice guidance and a quality assurance scheme for the design and operation of landscape-scale projects.

Resourcing this activity will require further exploration with stakeholder organisations and will likely involve both contributions in-kind from a committed and engaged team of organisations and the potential appointment of dedicated staff to ensure timely and efficient progress.

1. INTRODUCTION

1.1 On 21 June this year, the Ecological Continuity Trust (ECT) working in partnership with the British Ecological Society (BES) organised and hosted an interactive workshop for 40 of the UK's major public and corporate landowning organisations. The aim of the workshop was to bring together leading organisations with interests in landscape-scale transformation to begin building a *community of practice* for landscape-scale projects and gauge the appetite for developing recommendations for best practice.

- 1.2 Landscape-scale projects test out transformative changes in land management at scale. Such projects intersect with the concept of a *living laboratory*, which integrates multidisciplinary research and innovation in real-life settings. There is little guidance or coordination of landscape-scale projects, and the work often misses the opportunity to co-design and deliver the work in collaboration with key actors involved along the complex social, legal, economic and business chains which underpin all our land management decisions and outcomes. Without this involvement, a landscape-scale project risks missing key barriers and opportunities along the chain which are critical to the widespread uptake of new management options.
- 1.3 Of equal concern is that most current landscape-scale transformations are undertaken without any clear and/or robust approach for capturing evidence of outcomes which allow for effective scientific review synthesis of the magnitude, timing and resilience of any outcomes linked to the management change. This is not helped by the fact there is currently no coordination or agreement as to a minimum set of indicators for reporting outcomes and benefits nor standard methods for capturing the status and change in those indicators. This makes the synthesis of evidence to support an evidence-based approach going forward extremely challenging.
- 1.4 The one-day workshop held at the BES's headquarters in London afforded a timely opportunity for key organisations to come together to discuss these issues, raise concerns, consider vested interests and to begin to map a potential way forward for:
- The development of best practice in the design of landscape-scale projects;
 - The development of a community-wide agreed set of standardised methods and indicators for monitoring and reporting.
- 1.5 The programme for the workshop is provided at **Annex 1**. The list of organisations invited to participate is included at **Annex 2**, and those who attended (along with their named representative) are listed under **Annex 3**.

2. WORKSHOP SESSIONS – SUMMARIES OF OUTCOMES

- 2.1 *SESSION 1 – Landscape-scale Experiments & Living Labs: Who, What and When?*
- 2.1.1 This session was conducted via six self-selecting breakout groups, each of which appointed a rapporteur to report back to plenary. Key questions emerged immediately from this session around how to define a landscape and an experiment in order to judge whether stakeholders were indeed undertaking work at the appropriate scale and of an experimental nature designed to elicit cause-and-effect.
- 2.1.2 A very mixed economy of projects emerged from this discussion, from plot-based studies which needed scaling up to the landscape level to full catchment-scale living laboratories such as that being set up by the Wildfowl and Wetlands Trust in Stroud. Some stakeholders such as the Woodland Trust are testing key interventions at key sites only but with the potential to do more, whilst others such as the National Trust are investing in full-scale river and woodland restoration. The RSPB was notable in having identified 37 priority landscapes that it was now monitoring against 2022 baselines, and perhaps the most ambitious projects of all lay with the WWF's wholescapes concept being undertaken in places such as Norfolk and Pembrokeshire.

Some organisations such as Crown Estates and United Utilities referred to future landscape-scale transformation plans. Several stakeholders contended that true experiments were not being conducted, but rather adaptive management approaches, and highlighted the difficulties of designed randomisation and replication at the landscape scale. Some stakeholders such as the MOD were engaged in monitoring only, much of which tended to be opportunistic rather than designed. The shifting use of MOD lands for military training purposes presented interesting experimental opportunities.

2.1.3 Several stakeholders articulated their needs mainly as end users of results from landscape-scale experiments, for example Yorkshire Water, the Church of England and the Joint Nature Conservation Committee. Green finance organisations are also chiefly interested in end results, with participants Federated Hermes and Rathbones-Greenbank both expressing enthusiasm for evidence that demonstrates an approach works at scale. Accessibility to data remains a problem for a much wider range of stakeholders who seek verification of credible options for carbon sequestration and biodiversity. There is a real demand for evidence from farmers in particular, who experience the ‘disconnect’ between experimental practitioners and land managers. Data on carbon capture and soil health are of paramount importance here, and this is being aided by Defra’s farm-scale innovation work. Whilst farmers are directly concerned with multi-year management of landscapes, the link with experimental approaches is weak. One reason cited for this may be that tenancies on land are a problem when it comes to gaining permissions for experiments and long-term studies.

2.2 *SESSION 2 – Towards a Common Understanding of Landscape-scale Experiments: Define and Understand*

2.2.1 The first part of this session was conducted as an online mapping exercise, utilising a QR code linked to a GoogleForm to enable stakeholders to submit broad project information via their smartphones to a shared online bubble chart. The chart provided a snapshot of the size and timescale of stakeholders’ planned and existing studies, including whether they are scientist-led, have other stakeholder involvement or are co-created with a partner.

2.2.2 Participants submitted 45 responses during the survey which revealed that a great variety of landscape-scale projects are being conducted or planned, at a range of landscape scales and with durations from one year to indefinite. No clear pattern such as a trade-off between duration and extent was evident. This indicated that a diversity of approaches is being adopted.

2.2.3 The second part of the session sought to identify the various dimensions or elements of landscape-scale projects that need to be considered. Through six re-shuffled breakout groups, participants were encouraged to think about those elements as ‘categories’ under which they would wish to search for information on a future online portal. The key themes which emerged were as follows:

- Habitat type/farm type
- Ecosystem service(s)
- Size and scale
- Duration (continuous or periodic)
- Objectives

- Type of land management intervention
- Methodology/approach and best practice methods
- Relation to policy (Biodiversity Net Gain, Carbon Codes)
- Granularity of data
- Stakeholders involved
- Funder or commissioner (vested interests)
- Quality assurance (third party verification)
- Exit strategies
- Links to results and other outputs
- Links to further expertise that may be required (for example in invertebrate taxonomy)

2.3 *SESSION 3 – Barriers, Constraints and Opportunities for Stakeholders*

2.3.1 Participants were invited to identify how following best practice in the design and implementation of landscape-scale projects might be either enabling or limiting.

2.3.2 **Barriers/Constraints**

The following themes emerged as barriers or constraints:

- *Establishing the ‘counterfactual’* – what is the zero intervention?
- *Land tenure and ownership*
- *Narrowly-focused funding*
- *Establishing a common language and alignment of partners* – setting the overall direction of travel or long-term strategic vision
- *Collaboration in large-scale projects* – connecting different partners’ skill sets in the long-term
- *Confidentiality and ownership of data*
- *Culture clash* – the experimental approach is at odds with how some people think about timescales for results and the establishment of baselines
- *Short-termism*
- *Vested interests*
- *Practical control of projects* – farmers and scientists, the role of intermediates and who makes decisions on a land asset
- *Identification of risk and responsibility* – where does risk lie and who is responsible, for example for yield losses resulting from a study?
- *Accessibility to remote-sensing data*

- *Awareness of other projects* – especially those that might not be thought of as “research” and which could be missed and/or lead to duplication

2.3.3 Opportunities

The following themes emerged as opportunities:

- *Establishing new policy* – a timely opportunity, with many new landscape-scale initiatives underway or planned, and changes in land ownership
- *Co-creation of landscape-scale experiments* – the National Ecological Observatory Network (NEON) project in the USA was cited as an exemplar
- *Identification of current projects that can be connected up and realised at landscape-scale*
- *Long-term income and project resilience*
- *Matchmaking facility for project partners*
- *Establishment of standards/best practice and good governance potentially leading to a quality assurance scheme*
- *Building a stakeholder community with a shared purpose*
- *Project coordination* – sharing in the costs of a project manager through pooled funding (a recent example of this funding model was cited by United Utilities with Forest England and the National Trust)

2.4 SESSION 4 – Establishing Best Practice for Implementation, Monitoring and Evaluation

2.4.1 This session opened with a brief presentation on some of the national and international resources that are currently available in the public domain from UK government agencies and the EU. The presentation slides are available at **Annex 4**.

2.4.2 Participants were then invited to add further to the list of resources from their own activities, particularly where documentation was internal and not generally accessible to others apart from on request. The session concluded with an open invitation in plenary for participants to articulate what they thought was missing from current resources.

Further Resources

2.4.3 A substantial list of further resources was generated by participants and is included in full at **Annex 5**. Where these cannot be sourced online, they may be available from participants on request with facilitation from the ECT. Some resources that could be useful to farmers may not currently be available to them.

What is Missing

2.4.4 *Understanding Complexity*

Landscape-scale ecosystems are complicated, making it difficult to elucidate patterns. Achieving the appropriate granularity for data is key to bringing it all together at the correct scale and identifying emergent properties which only become apparent at scale from which to draw sensible conclusions.

2.4.5 *Established Methodology/Best Practice*

Understanding what is the best thing to do and where is not yet determined in the landscape space, and selecting partners that bring the right skills remains a challenge. Key aspects of effective protocols need to be shared.

2.4.6 *Quality Assurance*

Participants spoke of a requirement for more awareness of properly-controlled 'evidence' and it was suggested that a 'brand' ought to be built for landscape-scale experiments and living laboratories that bestowed a 'badge of honour' or potentially a tiered standards system (e.g. bronze, silver and gold) which reflected the ambition and standards a project has achieved

2.4.7 *Collaboration and Communication*

Participants called for more inclusivity and participation in landscape projects, and for ways of overcoming some of the significant cultural issues around the ownership of land. The importance of communicating metrics in more artistic and social ways was emphasised in order to align better with what nature means to people and how they connect with it.

2.4.8 *Clearing House for Data and Networking*

There remains an appetite for some level of standardised approach for both data collection and synthesis. Following this, the network of practitioners is key. A portal or some type of platform for connection is required, enabling linkages to form between landowners and/or land managers doing similar things in often distant parts of the UK. The Scottish Nature Finance Group's platform *Basecamp* was cited as a good example in which a dedicated person is committed to monitoring a portal and 'connecting up the dots'.

2.5 *SESSION 5 – Community Building and Delivery Planning*

2.5.1 The concluding session sought to ascertain from participants their further thoughts on what was needed to plug the perceived gaps described above, the framework under which it could operate and ultimately how it could be funded.

2.5.2 Some participants expressed a desire for ambition, referring to a 'moonshot' in the landscape-scale transformation space that established standardised methods for the collection and synthesis of data. It was suggested that the best framework for doing this across the four nations of the UK was the international Convention on Biological Diversity (CBD) but drawing additionally on the UK Environmental Observation Framework (UKEOF) and BSI standards for ecosystem markets.

2.5.3 Further stakeholders would need to be involved to realise this level of ambition, particularly from a funding perspective. Discussion then turned towards a potential further community meeting, possibly around a more focused theme such as (for

example) rewilding, restoration or agroecology. Additional stakeholders for this could include the following:

- UKRI
- Rewilding Britain
- Network Rail
- Knepp Estate
- The Wildlife Trusts
- Pasture for Life
- National Farmers Union

3. CONCLUSIONS AND NEXT STEPS

- 3.1 With 40 key landowning stakeholders in attendance, this workshop presented a rare opportunity for detailed dialogue around the need for community building and ‘best practice’ in the landscape-scale transformation space. A majority of participants appeared to welcome further engagement towards three key aspects which emerged from these discussions:

Connecting Stakeholders

- 3.2 There appeared to be broad agreement amongst stakeholders that those who attended (and others) need to be connected in this space and engaged in open dialogue. How that could be done, such as through new pages on the ECT/BES websites or through a bespoke online portal somewhere else remains to be determined.

Best Practice/Quality Assurance

- 3.3 There also appeared to be agreement that at least some form of common guidance is needed for quality assurance in the design, execution and longevity of landscape-scale experiments/living laboratories. The ECT and others could deliver this, but the writing of standard protocols would be a hugely ambitious task that would be beyond our capacity to frame at this time.

Further Community Building Workshops

- 3.4 Participants broadly agreed upon a proposal for a further workshop in the autumn (October or November) as a next step. This could begin tackling the above two issues but perhaps in a more focused topic area such as rewilding, restoration or agroecology, and involving additional stakeholders including UKRI, Rewilding Britain, Network Rail, the Knepp Estate, and others (see 2.5.3).
- 3.5 Resourcing these next steps and preparing preliminary best practice documents for discussion is likely to require both contributions in-kind from stakeholders and dedicated staff. Whilst there was no firm commitment to either at the workshop itself, this would be explored with participants through correspondence after the workshop. The two main considerations are:

- The willingness of organisations represented at the workshop to assist ECT and BES in preparing draft QA-style documentation for discussion at a subsequent workshop in the autumn;
- The appetite amongst participating organisations for funding a dedicated person to drive and manage coordination activity on behalf of the whole community.

Citation Information

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LANDSCAPE-SCALE EXPERIMENTS/LIVING LABORATORIES WORKSHOP 21 JUNE

VENUE: BRITISH ECOLOGICAL SOCIETY, 42 WHARF ROAD, LONDON, N1 7GS

Aim: to build a community of practice for living laboratories and landscape-scale experiments, and develop initial recommendations for best practice

PROGRAMME

10.00 – 10.30 Registration & Refreshments

10.30 – 10.35 Welcome – Jerry Tallwin (Chairman, Ecological Continuity Trust) & Hazel Norman (CEO, British Ecological Society)

10.35 – 10.45 Introduction, Purpose & Way of Working

Facilitators: Bridget Emmett, UKCEH & BES President-elect
Jonathan Silvertown, University of Edinburgh & ECT Trustee

10.45 – 11.15 **SESSION 1 – WHO, WHAT & WHEN?**

Landscape-scale Experiments & Living Labs

Facilitator: Bridget Emmett

Brief introduction followed by 6 groups/tables with flip charts to address the following and nominate someone to feed back in plenary:

- Who is already conducting landscape-scale experiments;
- Who is planning to conduct them;
- Who is mainly interested in the results from them.

11.15 – 12.45 **SESSION 2 – DEFINE & UNDERSTAND**

Towards a Common Understanding of Landscape-scale Experiments

Facilitator: Jonathan Silvertown

Part 1 – Mapping exercise to theoretical framework [*wall schematic to help identify where stakeholders are now & where they are trying to get to*]

Part 2 – Breakout groups at tables & feedback to plenary

6 breakout groups at tables (with nominated facilitators) to define the different elements, for example scale, level of co-creation, inclusion of local to global influences (and more), and how they vary across the continuum from living laboratories to landscape-scale experiments and wholescapes.

12.45 – 13.30 LUNCH

13.30 – 14.00 **SESSION 3 – BARRIERS/CONSTRAINTS & OPPORTUNITIES**

How Might These Approaches be Limiting/Enabling to Stakeholders?

Facilitator: Jonathan Silvertown

6 breakout groups at tables (with nominated facilitators) & feedback to plenary (one barrier/one opportunity per group).

14.00 – 14.45 **SESSION 4 – ESTABLISHING BEST PRACTICE**

Best Practice for Implementation, Monitoring and Evaluation

Facilitator: Bridget Emmett

Part 1 - Presentation (Bridget Emmett) on a selection of existing resources available to the community

Part 2 – 6 breakout groups at tables (with nominated facilitators) to begin identifying:

- Best practice for *implementing* landscape-scale experiments;
- Best practice for *assessing* (monitoring and evaluation) landscape-scale experiments – e.g. standardisation of methods, metrics, verification & accreditation;
- Knowledge gaps/what is needed.

14.45 – 15.00 COFFEE/TEA

15.00 – 16.00 **SESSION 5 – COMMUNITY BUILDING & DELIVERY PLANNING**

Community Building – Funding, Coordination & Timeline

Facilitators: Bridget Emmett & Jonathan Silvertown

Plenary Q&A session to elicit views on:

- Key elements of an outline delivery plan for the creation of a *Best Practice Guide* for living labs and landscape-scale experiments;
- Organisations willing to work together to help create what is needed;
- A workplan to develop a community-wide agreed set of standardised methods and indicators for monitoring and reporting;
- Options for funding this community-building activity e.g.:
 - Coordination fees from participants
 - Consortium funding bid to external trust/foundation
 - Single funder (where remit aligns well)
- Working Groups, date of next meeting & frequency of future meetings;
- Comms/web portal to promote and build a community of practice;
- Timeline to be relevant.

16.00 – 1630 **Summing Up & Next Steps**
Bridget Emmett

1630 Close

INVITATION LIST

1. Agriculture & Food Biosciences Institute (NI)
2. British Trust for Ornithology
3. Canal & Rivers Trust
4. Church of England
5. Corporation of London
6. Crown Estates
7. DAERA
8. Defra
9. Federated Hermes
10. Farming & Wildlife Advisory Group
11. Finance Earth
12. Forestry England
13. Game & Wildlife Conservation Trust
14. Greenfundrs
15. James Hutton Institute
16. John Muir Trust
17. Joint Nature Conservation Committee (JNCC)
18. Knepp Estate
19. LEAF
20. MOD Estates
21. National Highways
22. National Trust
23. National Trust for Scotland
24. Natural England
25. Natural Resources Wales
26. Nature-friendly Farming Network (NFFN)

27. NatureScot
28. Network Rail
29. Ordnance Survey
30. Rathbones-Greenbank
31. Rewilding Britain
32. Rivers Trust
33. Rothamsted Research
34. Royal Society for the Protection of Birds
35. Scottish Government
36. Soil Association
37. Sustainable Soils Alliance
38. UK Centre for Ecology & Hydrology
39. United Utilities
40. Wildfowl & Wetlands Trust
41. Wildlife Trusts
42. Woodland Trust
43. WWF-UK
44. Yorkshire Water
45. Zoological Society of London

LANDSCAPES WORKSHOP 21 JUNE, LONDON - PARTICIPANTS LIST

| SURNAME | FIRST NAME | AFFILIATION | POSITION |
|----------------|-------------------|---|--|
| Appleby | Brian | MOD | Climate Change & Sustainability Policy Advisor |
| Aston | Ben | Yorkshire Water | Technical Specialist - Ecology, Biodiversity & Invasive Species |
| Ausden | Malcolm | Royal Society for the Protection of Birds (RSPB) | Principal Ecologist |
| Betson | Mark | Church of England | National Public Policy Advisor - Communities, Partnerships & Place |
| Brooker | Rob | James Hutton Institute & BES Trustee | Head of Department of Ecological Sciences |
| Chiu Smit | Anthonie | Crown Estates | Senior Public Affairs Manager |
| Clarke | Stewart | National Trust & ECT Trustee | National Specialist - Freshwater, Catchments & Estuaries |
| Crick | Humphrey | Natural England | Principal Specialist in Conservation Ecology |
| Davies | Jonathan | National Parks Wales | Senior Ecologist, Nature Recovery |
| Dempsey | Benedict | WWF-UK | Wilder UK Landscapes Adviser |
| Emmett | Bridget | UK Centre for Ecology & Hydrology (UKCEH) & BES President-elect | BES President-elect |
| Hails | Rosie | National Trust | Director of Nature & Science |
| Hewlett | Ben | National Highways | Senior Environmental Advisor for Biodiversity |
| Hoodless | Andrew | Game & Wildlife Conservation Trust (GWCT) | Director of Research |
| Hornigold | Karen | Woodland Trust | Conservation Evidence Advisor |
| Lancaster | Victoria | United Utilities | Land & Estates Manager |
| Latham | James | Natural Resources Wales (NRW) | Senior Specialist Officer Strategic Projects for Nature Networks |
| Lawrence | Sophie | Rathbones-Greenbank | Stewardship & Engagement Lead |
| Lewis | Joanna | Soil Association | Policy & Strategy Director |
| Lindsay | Donna | Ordnance Survey | |
| Lines | Martin | Nature-friendly Farming Network (NFFN) | Chairman |
| Lockyear | Adam | Farming & Wildlife Advisory Group (FWAG) - Southwest | Head of Advisory Services |
| Mitchell | Clive | NatureScot | Strategic Resource Manager Nature & Climate |
| Morrison | Steven | AFBI - Northern Ireland | Head of Livestock Production Sciences Branch |
| Norman | Hazel | British Ecological Society (BES) | Chief Executive |
| Orman | Matt | Sustainable Soils Alliance (SSA) | Executive Director |
| Pegler | Sam | Forestry England | District Ecologist for the West District of Forestry England |
| Pettorelli | Nathalie | Zoological Society of London | |
| Ponniah | George | Defra | Science Policy - Natural Capital Ecosystem Assessment Programme |
| Pywell | Richard | UK Centre for Ecology & Hydrology (UKCEH) | Head of Biodiversity Science |
| Robson | Hannah | Wildfowl & Wetlands Trust (WWT) | Wetland Science Manager |

| | | |
|-------------|-----------|--|
| Rukerebuka | Elisabeth | Federated Hermes |
| Silvertown | Jonathan | University of Edinburgh & ECT Trustee |
| Siriwardena | Gavin | British Trust for Ornithology (BTO) |
| Stone | Dave | Joint Nature Conservation Committee (JNCC) |
| Sykes | Ben | Ecological Continuity Trust (ECT) |
| Tabor | Mark | Ordnance Survey |
| Tallowin | Jerry | Ecological Continuity Trust (ECT) |
| Turner | Phil | Crown Estates |
| Wardley | Tessa | The Rivers Trust |
| Williams | Mathew | Scottish Government |

Investor Relations Manager
 Professor of Evolutionary Ecology
 Head of Terrestrial Ecology
 Chief Scientist
 Executive Director
 Earth Observations & Analytics Strategic Product Manager
 Chairman & Trustee
 Policy Manager
 Director of Communications & Advocacy
 Chief Scientific Advisor

BEST PRACTICE RESOURCES

Resources (1) – habitat, climate and carbon codes



Resources (2) - Wholescapes



Wholescape Thinking Guidance Note

Towards integrating the management of catchments, coast and the sea through partnerships

NCI Task Force: E Maltby¹, M Acreman², A Maltby³, P Bryson⁴, N Bradshaw⁵



Resources (3) – green finance business orientated activities



Taskforce on Nature-related
Financial Disclosures

ABOUT

WHO WE ARE

GET INVOLVED

ENGAGEMENT

KNOWLEDGE BANK

NEWS

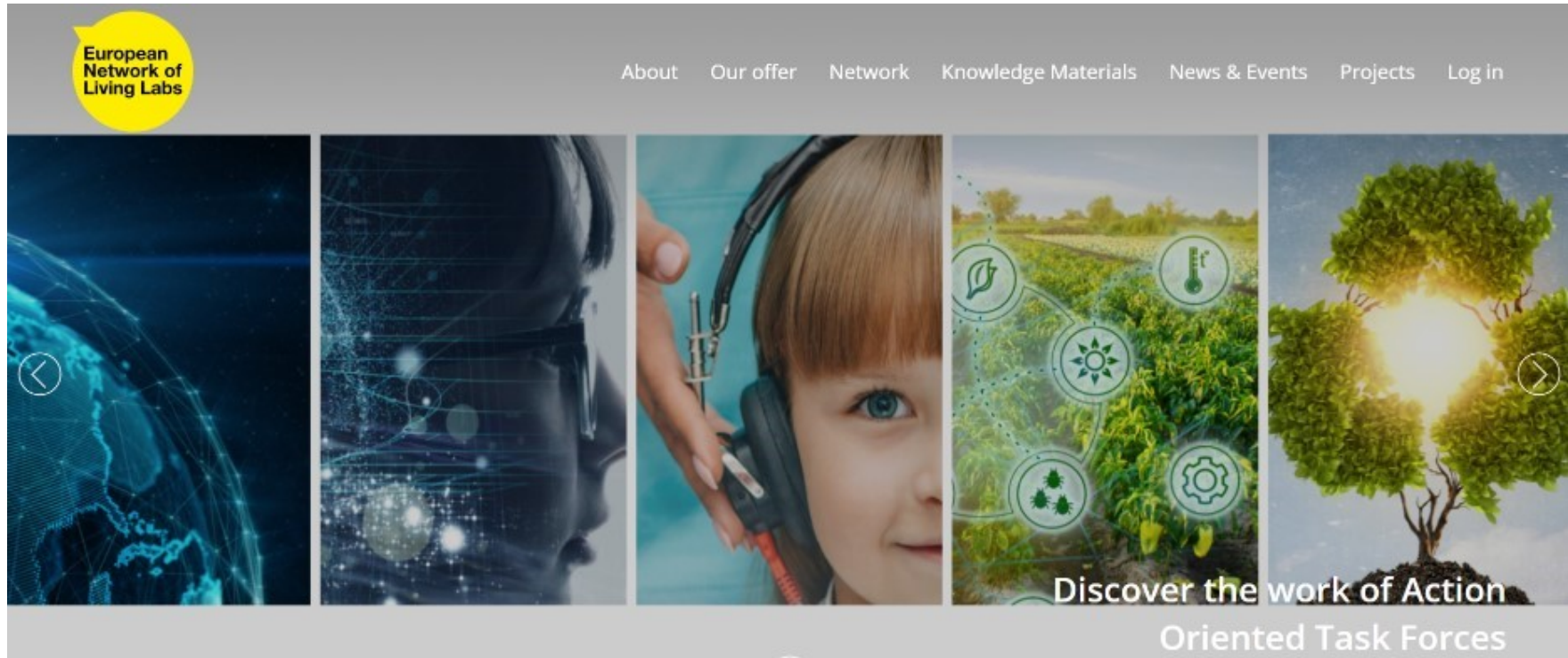
TNFD FRAMEWORK

Welcome to the Taskforce on Nature-related Financial Disclosures

**Developing and delivering a risk
management and disclosure
framework for organisations to
report and act on evolving
nature-related risks**



Resources (4) – EU resources



Resources (5) – links to UK reporting / policy resources



Intergovernmental Panel on Climate Change



2006 IPCC Guidelines for National Greenhouse Gas Inventories

UK natural capital accounts: 2022

Estimates of the financial and societal value of natural resources to people in the UK.

 **SYSTEM OF ENVIRONMENTAL ECONOMIC ACCOUNTING**



Natural England Joint Publication JP039

The Biodiversity Metric 4.0 User Guide

Defra Group

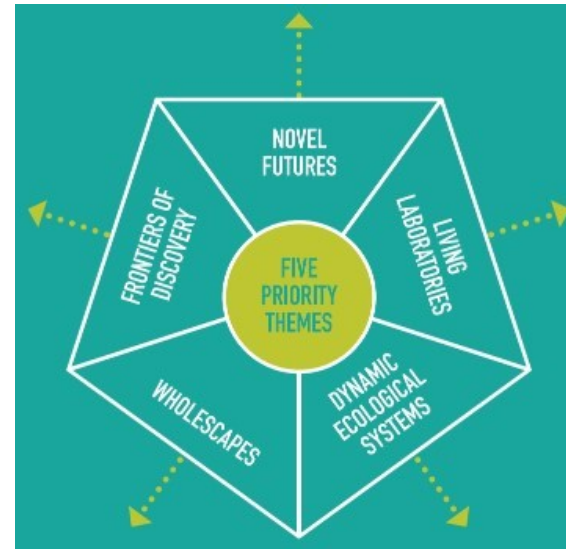
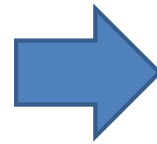


March 2023

The biodiversity metric is hosted by Natural England



Resources (6) – BES Research Agenda for the next 25 years



FURTHER RESOURCES CONTRIBUTED BY PARTICIPANTS

IUCN Nature-based solutions – Oxford-based.

Rewilding Europe – postings on reintroduction.

Endangered landscapes

Greenhouse Gas Protocol – developing international standards

Landscape Restoration Tiers

RSPB's extensive internal guidance.

River Restoration Centre – appraisal guide & monitoring (PRAGMO)

WWF wholescapes approach around natural capital.

Natural England resources – nature network evidence handbook, natural capital atlas, carbon maps (storage).

Ordnance Survey role on independent verification (worked with NE on baselines of earth observation & aerial surveying).

Environment Agency habitat-specific restoration guides (covering multiple habitats).

Welsh Government datasets available for the whole of Wales - Living Wales, ERAMMP, CURVE resources.

UKCEH land cover map, Living England map & simplified manual for tracking change against national benchmarks.

BTO methods for sampling landscapes across gradients (Gavin Siriwardena can share on request).

Citizen science data collection on birds, butterflies & bats available across UK. *(can be used to inform response variables and can provide counterfactuals, though this only works on a very large scale).*

UK Habitat Classification for identifying farm habitat (common system).

GIS data portals, for example soil maps.

Soil Association innovative farmer field labs (provided useful ways of undertaking trials).

UK Soil Observatory for 128 soil data layers and maps.

Woodland Trust *Conservation Standards* - a toolkit for monitoring conservation standards (adaptive management).

Flood & Drought resilience infrastructure project.