LCNR briefing

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Building an evidence framework for inclusion of interventions in Environmental Delivery Plans

Summary

- Environmental delivery plans (EDPs) are part of the Nature Restoration Fund. They allow developers to meet their compensation requirements for specific environmental damage caused by their developments by paying a levy which funds strategic conservation measures elsewhere.
- Evidence-based practice is vital for the effective delivery of EDPs.
- Evidence that can inform policy is diverse, but approaches exist for assessing the strength, reliability and relevance of evidence in relation to specific questions and assumptions.
- This can help policy makers decide how much evidence is needed to provide confidence that outcomes will be achieved. However, there is no single threshold for the amount of evidence required to be confident an intervention will be effective, as this will depend on the risk of failure. Approaches exist to prioritise evidence collation.
- A range of evidence of relevance to EDPs already exists both at the policy and conservation action level. Collating this will be important and we suggest action is taken to do so.

What are environmental delivery plans (EDPs)?

In England, there are many environmental legislations setting out a developer's environmental obligations (e.g. surveys, determining acceptable impacts, agreeing any compensation where impacts do occur). These include the Conservation of Habitats and Species Regulations 2017 (often referred to as the Habitats, or habs, regulations), the Wildlife and Countryside Act 1981; and the Protection of Badgers Act 1992. These were deemed a barrier to development and economic growth by the present Government who sought a more 'flexible and strategic' approach through introducing the Nature Restoration Fund (NRF) in the Planning and Infrastructure Act 2025, allowing developers to pay a levy to discharge specific environmental obligations (Defra and MHCLG 2025).

The NRF is delivered through environmental delivery plans (EDPs), which are prepared by Natural England, and made by the Secretary of State. EDPs are written for a specific area and environmental feature, such as impacts on great crested newts. Each EDP sets out, amongst other things: the type of conservation measures that will be taken to create an overall material positive outcome for that feature; and the amount developers have to pay to discharge their obligations related to that feature. Legislation requires that, by the end of each EDP, the effect of the conservation measures will materially outweigh the damage caused to the environmental feature by developers who have paid into the EDP.

It is hoped that EDPs and the NRF more widely will facilitate a more strategic approach to the discharge of environmental obligations, with pooled payments from developers allowing economies of scale relative to compensation done on a project-by-project basis and reducing the need for costly project-level assessments. However, this approach has faced controversy around the potential of weakening existing protections for nature (e.g., Johnson 2025; RSPB 2025). EDPs are currently being prepared to address nutrients pollution and impacts on great crested newts (Natural England 2025).

Why is evidence-based action important in EDPs?

Compensation funds allow parties causing environmental harm to transfer their biodiversity compensation liability to another actor in exchange for a financial payment (Hawkins et al. 2025). Unless compensation action is taken in advance, ecological compensation funds, such as the NRF, require the acceptance of *uncertain* biodiversity gains from future compensation action in exchange for *certain* losses caused by the developer. This risks biodiversity loss if the compensation action is not successful (Weissgerber et al. 2019). The NRF specifically has faced controversy, largely related to fears it will weaken existing protections for nature (e.g., Johnson 2025; RSPB 2025).

This uncertainty means biodiversity compensation approaches rely on trust that they will produce the promised benefits (Stuart et al. 2025), which can often be increased through showing decisions have been made in a structured way using strong independent evidence, amongst other things (procedural legitimacy: Stuart et al. 2023). As such, interventions used within compensation funds should be well evidenced and have a high probability of delivering the expected benefits (White et al. 2023). Significant failure rates waste money, potentially resulting in insufficient remaining funds to provide the promised level of compensation required to offset the biodiversity liabilities taken on by the compensation fund (Hawkins et al. 2025).

Within EDPs, evidence use is specifically important to contribute to the "overall improvement test", requiring that "by the EDP end date, the effect of the conservation measures will materially outweigh the negative effect of the EDP development on the conservation status of each identified environmental feature." (Planning and Infrastructure Act 2025 2025, page 63 (4)). A strong evidence use framework for inclusion of conservation measures in an EDP is essential both to minimise the chance of failure and unmet liabilities, and to fulfil the requirements of an EDP to set out why the conservation measures are considered to be appropriate; how they will enable the EDP to pass the overall improvement test; and what alternatives were considered and why they were not included (paraphrased from Planning and Infrastructure Act 2026, 63 (2)).

What is evidence in conservation?

Evidence useful to inform conservation decision making and policy design can take a range of different forms. Here we define evidence as "*relevant information used to assess one or more assumptions related to a question of interest*" (taken from Sutherland 2022; based on Salafsky et al. 2019).

Assumptions made in policy design can be about be about the effectiveness or feasibility of different actions, the impacts caused by pressures to nature, or assumptions about the biodiversity present in different locations. Wherever such assumptions are made in a policy, it is important that evidence is used to assess these design decisions and back up the relevant choices.

The book, Transforming Conservation, provides a **good overview of the types of evidence available from different sources and subjects**. This recognises evidence is broader than just scientific evidence, and includes expert opinion, case studies, local and indigenous knowledge. All these types of evidence can be useful for informing conservation policy design from expert opinion to published meta-analyses – but we need approaches to assess and combine the evidence to assess confidence in different policy options.

Assessing the strength of evidence underlying key assumptions

Compiling evidence from different sources can be challenging and makes it difficult to know how to combine to form robust conclusions. We thus need set approaches for assessing the weight of evidence that backs up a given policy option (Sutherland, 2022).

In Transforming Conservation, they outline that the weight of a piece of evidence can be thought of as a cube, with the weight dependent on: i) the reliability of the information; ii) the reliability of the source; and iii) the relevance to your specific policy context (Figure 1). These different blocks of evidence can either support or refute an assumption. If there is lots of highly reliable and relevant evidence that supports an assumption, one can have greater confidence in the conservation decision or policy option. Christie et al (2023) provide a qualitative assessment framework for assigning numeric values to the three dimensions, with the exact scale used depending on the granularity with which the decision-maker wishes to distinguish evidence sources. This can be used to compare between information from different sources (source reliability); study designs (for discussion on relative reliability of different study designs, see Christie et al. 2019) and limitations (information reliability); and geographic scopes (relevance), amongst other things.

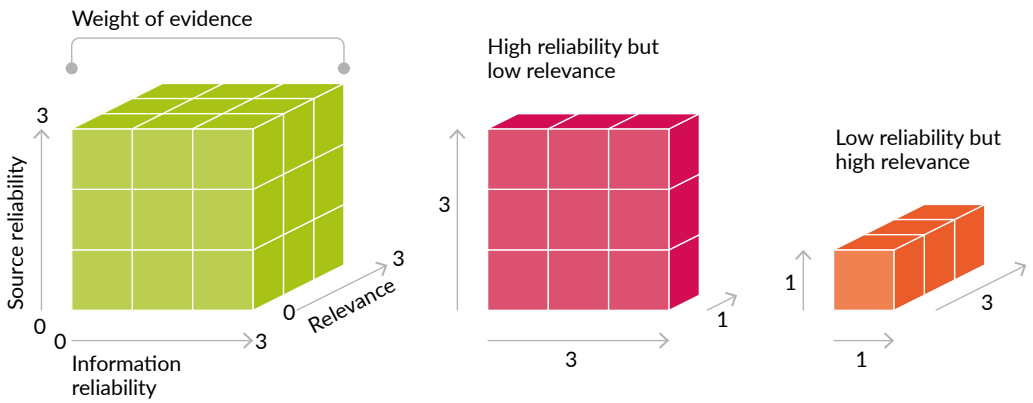

Figure 1: Assessing the weight of evidence according to information reliability, source reliability and relevance (ISR). Adapted from Christie et al., 2023, CC-BY-4.0.

The Balance Evidence Assessment Method (BEAM) was developed to assess the overall confidence in given policy options, based on the overall weight of evidence behind key assumptions (Christie et al. 2023). It provides a clear way to assess pieces of evidence and visualise the support for key assumptions in policy design in the context of a potentially conflicting body of literature (Figure 2). This approach could be used to appraise the evidence behind key assumptions in policy design, and show where there is high confidence in outcomes, or where there is low confidence or high uncertainty. The assumption being assessed may relate to a specific policy question (e.g. 'land use change will produce a great enough [should be defined specifically] reduction in nutrients per unit cost') or the magnitude of effect.

For more detail on this tool and available resources, see the paper Assessing diverse evidence to improve conservation decision-making.

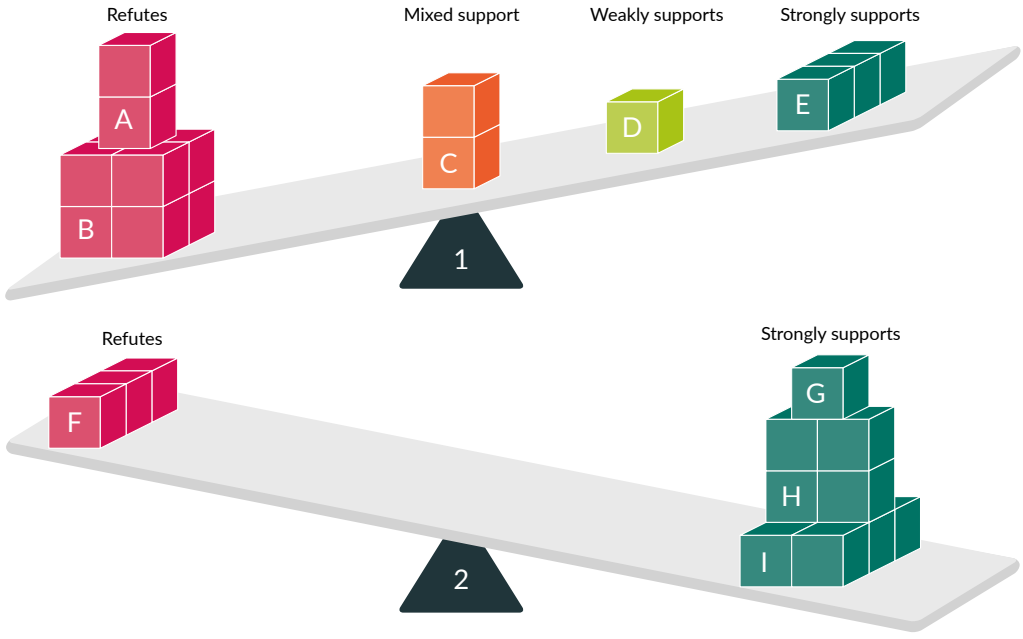

Figure 2: Example of using the BEAM approach to assess the extent to which evidence supports an assumption. This may be done ordinal (1) or binary (2) depending on the type or quality of evidence. From Christie et al 2023 – CC BY 4.0.

Information on effectiveness needs to be judged against the feasibility, costs and acceptability of different actions to stakeholder groups (Christie et al. 2022). Approaches such as multi-criteria decision analysis can be useful here, or developing formalised processes for acceptable costs per unit of effect (as is done for UK healthcare settings). See the Evidence2Decision tool for a step-by-step decision-making approach.

Defining an appropriate amount of evidence for a policy question

Even when using structured approaches, a question that is regularly asked is how much evidence is needed to provide enough confidence for us to proceed with a given decision. This may be particularly the case when there is a lot riding on a decision to include or exclude an action in an Environmental Delivery Plan.

Whilst there is no set answer to this question as it can depend on how risk-averse a decision maker is, frameworks have been developed to think through where greater weights of evidence may be required. These approaches can be used by teams to ensure evidence is prioritised to where it is most required.

- Sutherland et al. (2021) Strategic Evidence Assessment Framework. This provides a framework for defining the evidence needs when deciding upon different conservation actions. The level of evidence assessment required depends on the consequences of getting an assumption wrong (e.g. the conservation significance, reputational risks), and existing uncertainty in the effectiveness of actions. Where there is higher uncertainty, and higher risks, more evidence is required.
- White et al. (2026) Approaches for using evidence in organisational settings. Here they document an organisational approach to evidence use that could also be used in policy design. Similarly to in Sutherland et al. (2021), different levels of effort are required based on the criticality of an assumption – as highly critical assumptions require a greater burden of proof before we can be confident enough proceed with a given decision or policy option. Different hierarchical levels of evidence collation with increasing levels of effort are required until enough evidence is compiled for the given criticality level.

Main evidence sources and prior learnings

Globally, there are at least 32 existing compensation funds across 17 countries used to compensate for a wide range of environmental impacts (Hawkins et al. 2025). Whilst these can provide generalised learning around the design of such funds, their usefulness for understanding action selection is limited by a lack of transparency regarding both how conservation measures were selected, and the extent of the evidence used to do so. The lack of transparency also means existing funds provide limited evidence for the overall ecological effectiveness of actions taken. Of particular importance is the existence of a transparent and accessible register of compensatory actions taken by the fund. Many funds do not have a public register, or do not publish key information required for independent assessment of ecological outcomes. Examples include registers that are: static, limiting up-to-date assessment of effectiveness (e.g., Kingsborough Environmental Fund 2025); not publicly accessible (e.g., Luxembourg eco points scheme: emwelt.lu 2018); lack spatial data (e.g., inconsistent spatial data provision in German Impact Mitigation Regulation: Bull et al. 2018); and/or lack ecological data (most funds: Hawkins et al. 2025). Where funds have been independently audited and produced public reports on ecological outcomes using specified key performance indicators, such as Great Crested Newt (GCN) District Licensing (Newt Conservation Partnership 2025), they may provide useful evidence for the effectiveness of conservation measures.

Separately to compensation funds, there is a large amount of evidence available on the ecological effects of different protection and restoration actions. Conservation Evidence have collated thousands of papers relevant to both the current nutrients EDP and potential future EDPs. This evidence is made more accessible through creating 'synopses', which review the effectiveness of all actions you could take to conserve a species group or habitat, or to tackle a specific conservation issue. Of most relevance for nutrients are the Farmland Conservation (Dicks et al. 2013) and Ditch Management (Cutts et al. 2026) synopses. We would recommend new synopses to be produced on nutrients and other environmental impacts included in EDPs to form a strong evidence base for inclusion of actions.

References:

Bull, J.W., Brauneder, K., Darbi, M. et al. 2018. Data transparency regarding the implementation of European "No net loss" biodiversity policies. *Biological Conservation*, 218 (February): 64–72. doi: 10.1016/j.biocon.2017.12.002

Christie, A.P., Amano, T., Martin, P.A., Shackelford, G.E., Simmons, B.I. and Sutherland, W.J. 2019. Simple study designs in ecology produce inaccurate estimates of biodiversity responses. *Journal of Applied Ecology*, 56 (12): 2742–54. doi: 10.1111/1365-2664.13499

Christie, Alec P., Harriet Downey, Winifred F. Frick, et al. 2022. A practical conservation tool to combine diverse types of evidence for transparent evidence-based decision-making. *Conservation Science and Practice*, 4 (1): e579. doi: 10.1111/csp2.579

Christie, A.P., Morgan, W.H., Salafsky, N. et al. 2023. Assessing diverse evidence to improve conservation decision-making. *Conservation Science and Practice*, 5 (10): e13024. doi: 10.1111/csp2.13024

Cutts, V., Parr, M., Smith, R.K. and Sutherland, W.J. 2026. Global evidence for the effects of conservation actions to manage ditches for biodiversity. University of Cambridge and FenlandSOIL.

Defra and MHCLG (GOV.UK). 2025. Implementing the Nature Restoration Fund. December 18.

Dicks, L.V., Ashpole, J.E. and Dänhardt, J. et al. 2013. Farmland conservation: Evidence for the effects of interventions in Northern Europe. Volume 3. Synopses of Conservation Evidence. Pelagic Publishing.

emwelt.lu. 2018. Protection de la nature: comment utiliser l'outil numérique de compensation? October 26.

Hawkins, I., Gao, S., Kim, Y. et al. 2025. Designing ecologically effective and economically efficient conservation compensation funds: Lessons from theory and practice. Fbqms_v1. Preprint, *SocArXiv*, December 24. https://doi.org/10.31235/osf.io/fbqms_v1.

Johnson, T. 2025. Environmental delivery plans could create "conflict of interest" for Natural England, EAC warns. New Civil Engineer, November 20.

Kingsborough Environmental Fund. 2025. KEF Contributions & Reconciliation.

Natural England (GOV.UK). 2025. Notification of intention to prepare environmental delivery plans: Letter from Natural England to the Secretary of State. December 22.

Newt Conservation Partnership. 2025. NatureSpace licensing schemes: Monitoring results (2019-2024). Freshwater Habitats Trust.

Planning and Infrastructure Act 2025, 2025 Chapter 34 (2025).

Protection of Badgers Act, 1992 Chapter 51 (1992).

RSPB. 2025. What risks remain for nature from the UK Government's planning bill?

Salafsky, N., Boshoven, J., Burivalova, Z. et al. 2019. Defining and using evidence in conservation practice *Conservation Science and Practice*, 1 (5): e27. doi: 10.1111/csp2.27

Stuart, A., Bond, A. and Franco, A.M.A. et al. 2023. Conceptualising social licence to operate. *Resources Policy*, 85 (August): 103962. doi: 10.1016/j.resourpol.2023.103962

Stuart, A., Bond, A. and Franco, A.M.A. 2025. Public opinions of a net outcome policy: The case of biodiversity net gain in England. *Journal of Environmental Management*, 394 (November): 127421. doi: 10.1016/j.jenvman.2025.127421

Sutherland, W.J. 2022. Transforming conservation: A practical guide to evidence and decision making. Open Book Publishers. doi: 10.11647/obp.0321

Sutherland, W.J., Downey, H., Frick, W.F., Tinsley-Marshall, P. and McPherson, T. 2021. Planning practical evidence-based decision making in conservation within time constraints: The strategic evidence assessment framework. *Journal for Nature Conservation*, 60 (April): 125975. doi: 10.1016/j.jnc.2021.125975

The Conservation of Habitats and Species Regulations 2017, No. 2017 no. 1012 (2017).

Weissgerber, M., Roturier, S., Julliard, R. and Guillet, F. 2019. Biodiversity offsetting: Certainty of the net loss but uncertainty of the net gain. *Biological Conservation*, 237 (September): 200–208. doi: 10.1016/j.biocon.2019.06.036

White, T.B., Petrovan, S.O., Bennun, L.A. et al. 2023. Principles for using evidence to improve biodiversity impact mitigation by business. *Business Strategy and the Environment*, 32 (7): 4719–33. doi: 10.1002/bse.3389

White, T.B., Prescott, G.W., Jobson, B., Morgan, W., Smith, R.K., Starkey, M., & Sonter, L.J. (2026). Evidence-based practice in consultancy settings is a win–win for business and nature. *Ecological Solutions and Evidence*, 7(2), e70176. doi: 10.1002/2688-8319.70176

Wildlife and Countryside Act, 1981 Chapter 69 (1981).

About us

The ongoing loss and degradation of nature is one of the greatest challenges of our time. In response, the Leverhulme Centre for Nature Recovery (LCNR) was created in 2022 as a hub for innovative research on nature recovery. It brings together experts from a broad range of disciplines across the University of Oxford. The team collaborates with partners in communities and organisations around the world.

What is nature recovery?

We define nature recovery as the activity of helping life on Earth to thrive by repairing human relationships with the rest of the natural world.

Our aims

- To understand the societal, biophysical, policy and systemic factors that enable or challenge nature recovery
- To collaborate with practitioners, communities, and partners in diverse contexts to test, challenge, and innovate the tools, techniques, and theories that deliver fair and effective nature recovery.
- To establish an inclusive nature recovery community at Oxford, leveraging its intellectual capital and interdisciplinary convening power to address key debates and challenges in the field.

Leverhulme Centre
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