Consultation



Leverhulme Centre for Nature Recovery

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Response to consultation on the draft Environmental Delivery Plan (EDP) for Nutrient Pollution in Norfolk: Broads Special Area of Conservation (SAC) (Yare and Bure), Broadland Ramsar and River Wensum SAC

Photo by Andrew Banner on Unsplash

Summary

This consultation was issued by the Department for Environment, Food and Rural Affairs (Defra) to invite comments on the measures proposed in the first Environmental Delivery Plan (EDP), which is intended to protect the environment at the same time as enabling sustainable development.

This submission was submitted by the Leverhulme Centre for Nature Recovery on 26 October 2026.

As this is the first EDP to be produced, it is vital that it sets a high standard for others to follow. However, this version of the EDP would benefit from the following improvements.

- The EDP must prove that it will not increase overall nutrient levels, using the same quantified method as for nutrient neutrality, because the sensitive habitats of the Fens and Broads are close to tipping points where further nutrient inputs could result in irreversible loss of biodiversity.

- To do this, there should be more focus on measures that avoid or remove pollution and maintain water levels, including careful siting of development, mandatory sustainable urban drainage systems (SuDS) (positioned to intercept runoff and remove pollution via a treatment train, and designed for biodiversity co-benefits), water efficiency standards, construction phase planning conditions to prevent runoff, septic tank upgrades, habitat creation sited to intercept agricultural runoff (including field margins and riparian buffers), and beaver reintroductions. Adequate sewage treatment capacity to meet designated standards should be available before occupation commences.
- Measures are needed to prevent leakage of impacts elsewhere in the catchment.
- Creation of new habitats is welcome but should provide the "gain" once nutrient neutrality is delivered.
- Monitoring and the Overall Improvement Test should be based mainly on changes in protected species populations and nutrient levels, as this is the only way to determine whether the habitat measures have offset the increased nutrient loading from the development. Detailed monitoring must not stop after 10 years.
- The overall budget and that for remedial action seem too small, and an excessive portion of the budget is allocated for deer management with no nutrient benefits. Calculation of the target habitat areas and the levy rate must be transparent.

Chapter 1 and 2 - executive summary and introduction

Q6 To what extent do you think the overall purpose of the EDP is sufficiently clear?

Not very clear.

Q7 To what extent do Chapters 1 and 2 clearly set out the approach the EDP will take to deliver a material improvement that outweighs the negative effect of development?

Not clear at all.

Chapter 3 - scope of the EDP

Q8 Is the EDP period clearly set out?

Yes

Q9 To what extent do you agree that the geographic scope of the EDP has been clearly defined?

Clear

Q10 To what extent is the explanation and depiction of excluded areas sufficiently clear?

Clear

Q11 To what extent is the methodology used to define the maximum development capacity (15,780 dwellings) under this Norfolk EDP clearly set out?

Clear

Chapter 4 - Plans and strategies considered during EDP preparation

Q13 To what extent has the EDP provided a clear overview of the measures currently being taken or likely to be taken by other public authorities?

Clear

Chapter 5 - Environmental features: Conservation status and negative effect

Q14 To what extent do you agree that all environmental features (habitats and species designated under The Broads SAC, Broadland Ramsar, and River Wensum SAC) likely to be negatively affected by nutrient pollution from development have been identified in the EDP?

Not very clear

Nitrogen is not assessed for the Wensum because there is no nitrogen target. However, development will still produce extra nitrogen which will have a damaging impact on the river and associated habitats. Nitrogen impacts on the Wensum should be fully addressed in the EDP.

Q15 To what extent do you agree with the approach of defining current conservation status of environmental features using habitat structure and function and their future prospects?

Disagree

Environmental features include both habitats and species (or species assemblages). Habitat structure and function clearly has a very significant impact on species, but species are also affected by other factors such as disturbance and habitat management. This is important because different species can react differently to the same management intervention, with some benefiting while others are adversely affected.

Therefore, it is very important that the populations of protected species are monitored in addition to the impacts on habitat area, structure and function. This is the only way to determine whether the conservation measures are successfully offsetting the increased nutrient inputs from housing development for each affected species.

Q16 To what extent do you agree with the description of how the negative effect of additional nutrient loading from new development impacts the environmental features of the protected sites?

Agree

The description of the negative effect is comprehensive but the document should report concentration increases as a percentage of the target concentrations, not only the actual concentrations (which are far higher, thus making the increases look less significant).

Q17 Do you think the approach used to assess the environmental impacts of additional nutrient loading from EDP development on the conservation status of the environmental features is appropriate and proportionate?

Somewhat

In such a complex system it is not possible to quantitatively model the exact outcomes on each protected feature, but the qualitative assessment is thorough and takes into account the compounding impacts of multiple stressors on the environmental features.

The percentage increases in nutrient levels appears relatively small, but this is in relation to existing concentrations that are far larger than safe targets. The assessment mentions the proximity of the highly stressed systems to tipping points, but the distance to tipping points should be quantified. There should also be a quantitative assessment for the nutrient balance, using the same approach as for nutrient neutrality budgets.

Chapter 6 - Conservation measures

Q18 To what extent do you agree that the proposed programme of conservation measures is appropriate to outweigh the negative effect of development?

Strongly Disagree

The conservation measures are important to improve resilience but will not reverse the decline of protected features unless water quality is significantly improved. The current programme will increase nutrient levels in a system that is approaching irrecoverable collapse. To address this, the programme should target more pollution-reduction measures.

No-cost planning conditions (see also Q19)

- Construction phase measures to reduce run-off impacts.
- Sustainable urban drainage systems (SuDS) (see also Q19): mandate implementation of a water quality treatment train (including constructed wetlands) to treat all site run-off to acceptable N and P levels. At present, SuDS typically range from underground tanks to large ponds in a corner of the site, and are rarely designed to optimise water quality treatment (See https://doi.org/10.1080/09640568.2026.2646475).
- Ensure that adequate sewage treatment capacity to meet designated standards will be available before occupation commences.

Targeted conservation measures

- Spatially targeted habitat creation to intercept agricultural runoff, especially grass-scrub-tree mosaics along lower field margins and wide riparian and wetland buffers. These would also enhance landscape connectivity.
- Spatially targeted conversion of agricultural land at highest risk of generating nutrient runoff, i.e. arable land (or intensively stocked pasture) on floodplains or on slopes that drain directly to a watercourse with no intervening interception features.
- Beaver introductions: highly effective, but there is currently only one isolated family; new genetic stock is needed to enable spread and establishment.

Encourage/acknowledge need for parallel action

- Upgrade inefficient septic tanks and package treatment plants.
- Dietary change to reduce leakage of impacts elsewhere when farmland is converted to semi-natural habitat.

Also, there is no information on how the target areas and levy were calculated; proposed monitoring arrangements and criteria for the overall improvement test are inadequate; and the budget for remedial action is small, limiting the potential to correct course. These issues must be addressed (see Q35).

Q19 Do you have any comments on the conservation measures that were considered by Natural England but not included within the programme of conservation measures, or are there any additional measures that should have been considered?

More avoidance and mitigation measures are needed, in line with the Environmental Principles (see Q18), including:

- Avoid development in sensitive locations, e.g. close to and upslope of a waterbody or wetland. Account for all transmission pathways to sensitive locations
- Avoid development where adequate sewage treatment capacity will not be available (planning condition).
- SuDS is excluded because:
  - "SuDS conditions could not be applied to all developments in this EDP (such as small or brownfield sites)." Not valid because measures do not have to apply to all sites: the only planning condition that was included in the EDP only applies to sites without mains sewage. Also, a planning condition for SuDS on brownfield sites would be justifiable given the importance of reducing nutrient pollution in this sensitive catchment.
  - SuDS is mandatory in the NPPF. Not valid because delivery via the NPPF is typically sub-optimal (https://doi.org/10.1080/09640568.2026.2646475). Planning conditions should specify that SuDS should be positioned to intercept runoff and remove pollution via a treatment train, and be designed for biodiversity co-benefits.
- Riparian buffer strips: discounted due to maintenance requirements and 'not restoring habitats at scale' but provide highly effective targeted protection and connectivity.
- Spatially target habitat creation for nutrient removal (see Q18) including to buffer existing wetlands, not just new ones.
- Beavers: highly effective for nutrient removal; only one family present; new stock needed.
- Construction phase planning conditions: discounted due to "localised effect…. prevented 50m excluded area around protected sites." However, runoff entering the water system has far-reaching effects; the 50m zone may not prevent harm.
- Water efficiency standard below 100 l/day: clarify whether this is already mandated in the area.
- Reconsider septic tank upgrades; deliver via regulation, beyond the EDP?

See also answer to Q35 for suggestions to strengthen the selection criteria.

Q20 To what extent do you agree that the EDP clearly sets out the role of back-up conservation measures and the circumstances in which they will be implemented?

Disagree

Q21 To what extent do you agree with the proposed back up conservation measures?

Strongly Disagree

The back-up measures are identical to the primary measures and therefore suffer from the same problem: failure to reduce nutrient pollution. More targeted measures should be included as described for Q18 and Q19.

Q22 To what extent do you agree that 100 years is the appropriate period to secure and maintain conservation measures?

Disagree

We suggest that the period should be 125 years, as for the nutrient neutrality scheme.

Q23 To what extent do you agree that Natural England has adequately considered the value for money offered by the conservation measures that have been selected?

Disagree

Value for money has only been considered as cost, not cost-effectiveness per kg of nutrient removal. Also, we think the programme is underfunded and the levy should be increased to ensure the necessary level of mitigation and compensation to offset the damage, with monitoring and maintenance over 100 years. The 5% contingency for back-up measures seems too small. It is not clear how the target habitat areas and hence the levy costs were calculated.

Also, the budget allocation for deer management is excessively high: it is up to £200,000 x 20 years = £4 million, 10% of the whole budget, plus additional culling costs from year 20-100. Culling tends to take place for limited periods, and evidence from the cited report indicates that much of the trampling and browsing damage to fenland vegetation is due to localised high populations of Chinese Water Deer, which could be relatively easy to cull (as they congregate in the same location) so it is not clear why a full-time position is funded for 20 years. In addition, there are no quantified nutrient reductions from deer management.

Q24 To what extent do you agree with the proposed approach to sequencing of conservation measures?

Disagree

The overall approach is to start with measures that take longer to deliver, so that habitats can start to mature in time to deliver benefits. Implementation will start when the levy is paid, i.e. in parallel with construction. However, while this makes sense in terms of securing delivery of long-term measures, it also means that there will be a long delay before any nutrient reduction

benefits are delivered; exacerbating the risk that the new development could tip sensitive ecosystems into irrecoverable decline or result in extinction of protected species populations. We therefore suggest that:

- Half of the measures in the first tranche should be "quick win" nutrient reduction measures (drawing from the list proposed in our answers to Q18 and Q19, such as buffer strips and conversion of high-risk farmland).
- Nutrient reductions must be delivered before homes are occupied, to avoid tipping points being breached.

See also our response to Q25, which suggests that sequencing could be adjusted if suitable land in a good location becomes available for purchase.

Q25 To what extent do you agree with the proposed approach for the delivery (including procurement) of conservation measures?

Disagree

Delivery of habitat creation measures depends on land availability. There is a risk that landowners may not be willing to sell suitable land types in suitable locations. However, the compulsory purchase option and the powers granted to Natural England to enter and survey land without landowner permission risk creating a backlash, undermining legitimacy and support for the whole programme.

It is therefore vital that delivery is conducted in partnership with local communities and landowners, and that compulsory purchase and land access powers are not used. This also means that sequencing of actions may need to be partly guided by availability of land for purchase; if suitable land for a particular action becomes available, that action can be prioritised earlier.

The order of steps in para 637 implies that stakeholder engagement is at the end of the process, after site selection, feasibility assessment and detailed design. To ensure legitimacy and local support, stakeholders should be engaged and empowered to contribute to decisions and feed in local knowledge and needs (e.g. for access) at the outset, not asked to rubber stamp plans at the end (although we recognise that habitat design requires specialist knowledge). Our Recipe for Engagement may be useful (https://nbshub.naturebasedsolutionsinitiative.org/governance/).

The maps in Annex 6C are useful to show spatial targeting. However, Fig 21 (which shows all farmland) could be refined to:

- exclude grade 1 and 2 land
- identify arable land on slopes close to watercourses, where erosion and runoff is high risk.
- Show areas where N and P loading (not just P loading) is highest.

Leakage of nutrient runoff must be prevented. For example, a farmer could sell arable land for habitat creation then plough grassland to arable elsewhere. Shifting to more plant-based diets is necessary to avoid food imports increasing if farmland is converted.

Chapter 7 – Overall Improvement Test

Q26 To what extent do you agree with the methodology for assessing the Overall Improvement Test?

Strongly Disagree

The Overall Improvement Test is carried out as a prediction based on expert opinion, in this EDP, and as an evaluation at the mid-point and end-point of the EDP.

- For the initial predictions, the method is largely based on expert opinion but it is not clear which experts were consulted.
- The scoring system is subjective. For example, 91-100 points are awarded for an "extremely high positive effect" but that could mean different things to different people. The scores should be matched to a quantitative scale of improvements in the relevant outcomes for habitats, species and nutrients.
    - For species, this should be the expected percentage change in the populations of the affected protected species.
    - For habitats, this should be based on increased habitat area, quantified as the percentage of the whole EDP area converted to each habitat type, and condition, e.g. related to chemical, physical, hydrological and biological status.
    - The programme should aim to achieve nutrient neutrality as a minimum, assessed using the same methodology as the existing nutrient neutrality calculations to model the expected impact of the conservation measures on nutrient concentrations.
- Although the experts did the first round of scoring, Natural England did the final round, but there was no detailed justification for the scores chosen.
- It is not clear how the area targets were derived, and whether they are likely to succeed in materially outweighing the adverse nutrient impacts.
- For the ex-post evaluations, the method for determining the extent to which the benefits materially outweigh the adverse impacts (described in Annex 7A, para 725, and Annex 9 para 863) is wholly inadequate as it relies on judgement of the "likely efficacy" of the measures, rather than data. Instead, the criteria should be based on the actual monitored change in populations for the affected protected features of the protected sites, including not just habitat areas but also species populations (otters, white-clawed crayfish, Desmoulins Whorl Snail, bullhead, lamprey, wetland plants, invertebrates and bird assemblages). A fixed percentage increase in populations should be defined as the minimum increase (e.g. 20%). Otherwise, it would be possible for Natural England and the Secretary of State to judge that the programme has succeeded without any evidence of improvement.

Q27 Would you suggest any improvements that can we made to strengthen the methodology for assessing the Overall Improvement Test?

We suggest that there should be a quantified programme of actions to deliver nutrient neutrality, i.e. to remove the same amount of nutrients as are added, plus an extra 15% to allow for uncertainty. This can be delivered through the measures identified in our responses to Q18 and Q19, including SuDS treatment trains and constructed wetlands, field margins, buffer strips, wetland creation (including via beavers) and converting high-risk farmland to semi-natural habitat. The conservation overall improvement (to materially outweigh the damage) should then be delivered through the habitat creation and restoration measures.

For the ex-post evaluations, actual monitoring data should be used rather than expert judgement. This should be based on measured changes in outcomes, not just delivery of actions, in order to determine whether the nutrient increases have been outweighed by the habitat-based conservation actions. It should be based on:

- Populations for the affected protected species (otters, white-clawed crayfish, Desmoulins Whorl Snail, bullhead, lamprey, wetland plants, invertebrates and bird assemblages). A fixed percentage increase in populations should be defined as the minimum increase (e.g. 20%). Otherwise, it would be possible for Natural England and the Secretary of State to judge that the programme has succeeded without any evidence of improvement.
- Areas and conditions of affected habitats.
- Nutrient concentrations in affected waterbodies.

Q28 To what extent does the EDP clearly set out the evidence that underpins Natural England's assessment of the Overall Improvement Test?

Not very clear

The evidence is presented in qualitative terms and then assigned a score range (e.g. medium benefit = 31-40), but it is not clear exactly why each score range was assigned. There should be a more quantitative test, e.g. based on assumed changes in species populations or nutrient levels. For example, if it is assumed that a certain intervention could increase protected species populations in the local area by 10-20% or reduce N levels by 5%, that could equate to a "medium" benefit, or a score of 51-60.

Chapter 8 – Nature Restoration Levy

Q29 To what extent do you agree that the allocation between (i) administration, (ii) delivery of conservation measure and (iii) long-term maintenance, (iv) management and (v) monitoring costs have been clearly set out?

Not very clear

It is clear except for the 5% for back up measures, which is not shown on the figure. It is not clear what happens if back-up measures are required but the 5% contingency is not enough to deliver a material overall improvement in conservation status.

Q32 Do you agree with the approach taken to aggregating the costs of conservation measures at plan level and then apportioning these evenly across all development?

Disagree

Although this is a pragmatic approach and reduces complexity, it is a blunt instrument because it treats all housing units the same, regardless of size, location and impact. It thus removes a potential incentive to avoid or mitigate impacts through avoiding siting development in sensitive areas close to fens and broads, or installing SuDS.

Chapter 9 - Monitoring and reporting

Q33 To what extent do you agree with the proposed monitoring themes as set out in chapter 9 of the EDP?

Disagree

We agree with the selected themes but we suggest that some extra aspects should also be monitored.

- The degree of consultation with local communities and experts.
- Alignment of habitat creation with the LNRS habitat map.

Greater clarity is needed on indicators for monitoring effectiveness and conservation outcomes rather than just implementation of measures. Para 863 states that a “proportionate” monitoring approach will be undertaken, where for “conservation measures supported by a strong evidence base and with high confidence in delivery, monitoring will primarily focus on implementation performance”, and the expected ecological outcomes will be assumed to follow automatically. This is inadequate. At a minimum, protected species populations should be monitored (and expected to increase for the “materially outweigh” condition to be met). Otherwise there is no way of showing that the habitat creation and restoration actions have outweighed the negative pollution impacts. Water quality should also be monitored, and nutrient removal through the conservation and mitigation measures should be monitored and reported.

It is worrying that after the 10-year EDP period “monitoring will mainly focus on proportionate assurance that conservation measures are functioning effectively to maintain a favourable balance.” This implies that monitoring of outcomes for species populations and habitat condition may end after 10 years, far too early to tell if the programme is working. There should be a clear expectation that species populations will increase, e.g. by at least 15%, unless it can be clearly proven that other environmental factors outside the EDP control have caused a decline.

Similarly the Overall Improvement Test will be based on “expert judgement” (para 863). Again, this should require a quantified increase in protected species populations, not just expert opinion.

Q34 To what extent does the EDP clearly set out how the reporting requirements will be met?

Not very clear

General

Q35 Do you have any additional comments from the chapters above?

- The Planning and Infrastructure Act created a risk that damage to important wildlife sites could be legitimised through EDPs, undermining delivery of our statutory biodiversity targets, so it is crucial that this first EDP is well-designed, robustly monitored and successfully delivered. The draft version needs to be significantly strengthened in order to succeed in offsetting the damage caused by nutrient pollution from EDP development.
- Most importantly, the EDP must include more targeted measures to tackle pollution, to achieve nutrient neutrality, with other conservation measures deployed to provide the overall gain for biodiversity beyond that.
- The proposed monitoring approach is inadequate and must be improved. Monitoring of outcomes focuses largely on delivery of habitat creation and restoration; there is no mention of monitoring species populations for the affected protected features of the protected sites, e.g. otters, white-clawed crayfish, Desmoulins Whorl Snail, bullhead, lamprey, wetland plants, invertebrates and bird assemblages. Unless species populations are monitored, it will not be possible to determine whether the habitat measures have offset the increased nutrient loading from the development. It is also implied that detailed monitoring may cease after 10 years.
- We suggest strengthening the selection criteria for conservation measures as follows:
    - Exclude measures where evidence of effectiveness, additionality or environmental risk are red, even if this is the only red category.
    - Environmental risk should be based on assessment of severity of risk (not just number of types of risk) and include impact on species (as well as habitats).
- There is some apparent conflict between conservation measures, which could be addressed and explained in the EDP:
    - Fen management aims to prevent succession to woodland; wet woodland creation aims to allow succession.
    - Fen management includes grazing (which will include trampling and browsing) or cutting (using heavy machinery that could damage vegetation); deer management aims to reduce grazing, trampling and browsing.

- In chapter 4 there are several claims that this EDP will positively contribute to various nature recovery goals under the EIP and LNRS, such as:
    - EIP Commitment 1 (Mobilising private investment and finance to restore and protect nature in England),
    - EIP Commitment 8 (2030 50% of SSSI features to have actions on track to achieve favourable condition)
    - EIP Commitment 28 (Restore chalk streams to better ecological health),
    - the LNRS goal to Reduce emissions of damaging water pollutants from all sources
    - the LNRS goal to Benefit the marine environment by improving the quality of the freshwater entering it.

However, these claims may be overstated given that the EDP is largely for offsetting damage and the additional benefits (if any) that might be delivered are not quantified, and are only based on expert opinion. The goals relating to improved water quality are very dubious given that there will be increased water pollution as a result of the EDP, and this will be traded off against habitat creation measures that do not directly mitigate the pollution. Similarly, the habitat created as compensation under the EDP should not count towards the EIP target to create an additional 500,000 ha of wildlife rich habitat by 2042; only the extra habitat beyond that needed for compensation should count.

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 partners in case study landscapes to test and enhance frameworks, technologies, and tools for effective, inclusive, scalable, nature recovery delivery that also provides for society and its wellbeing
- 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.

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