



What should the EU consider to move towards No Net Loss?



Summary

The biodiversity strategy of the European Union (EU) includes a target to “ensure there is no net loss of biodiversity and ecosystem services (e.g. through compensation or offsetting schemes)” by 2020.

The goal of biodiversity offsets isn't to create an exact replica of the original habitat and its species, but to provide a net balance of residual losses and gains. Offset policies must acknowledge that there are limits to what can be offset and seek to minimise the negative impacts on biodiversity from development (using the mitigation hierarchy approach); all of which raises technical and organisational issues. The OPERAs project offers research findings supporting effective implementation and enforcement of the mitigation hierarchy and biodiversity offset, to balance development and conservation goals.

Key messages

- ▶ Biodiversity offsets are part of the solution to balance development and conservation goals
- ▶ Assessing biodiversity losses and gains to determine net outcomes requires adequate data management tools
- ▶ Strategic “macro-level” biodiversity offset approaches have better chances of ecological success than case-by-case approaches
- ▶ Offset implementation can be done by farmers, paid by developers to provide biodiversity “gains”, but payment levels and contract duration remain important criteria for uptake
- ▶ Conservation banking can simultaneously meet demands for conservation and economic development through strategic and anticipated siting of offsets, under certain circumstances
- ▶ Including ecosystem services in biodiversity offset approaches is important to strengthen the consideration of social equity and can improve acceptance of projects and proposed offsets

Knowledge

Research findings lead to important implications for the implementation of offset approaches aimed at achieving no net loss (NNL) or net gain of biodiversity and ecosystem services.

Achieving NNL for biodiversity and ecosystem services throughout the EU requires policies to reduce additional land demand and a wider application of regulation that avoids conversion of natural and semi-natural land cover types. (Schulp et al. 2016). This is the avoidance step!

Achieving NNL also requires adequate quantification of impacts. There are gaps in methods to define thresholds for residual impacts; to measure cumulative effects; to define dedicated metrics to measure losses and gains; and to assess the technical feasibility of offsets. Other challenges include mechanisms to guarantee long term outcomes and additionality, and finally for organising the governance of monitoring, reporting and compliance.

To address residual impacts, aggregated offset approaches are more likely to be successful (in terms of ecological outcomes) and enable offsets to be located strategically through landscape level planning.

In the Grenoble exemplar (France), scenario-based simulations show that the most commonly used approach of applying area-based multipliers

and finding land opportunistically, on a case-by-case basis, results in a net loss of biodiversity. An aggregated approach, where losses and gains are assessed using functional metrics, actually leads to a net gain of biodiversity and because offsets are aggregated may allow more cost-effective monitoring and enforcement (Vaissière et al. 2016a).

Developing mechanisms to strategically aggregate and anticipate offset implementation (i.e. habitat or conservation “banking”) comes with economic, institutional and ecological prerequisites which include, respectively, sufficient market activity; adequate regulatory capacity to design and enforce trading rules; and large, well-connected ecological networks (Van Teeffelen et al. 2014).

In response to urban expansion in rural areas near Edinburgh, Scotland, residents differed greatly in their preferences for offset design to compensate losses in biodiversity and ecosystem services. This showed that when it comes to ecosystem services in particular, designing offsets that meet no net loss from the perspective of beneficiaries is not straightforward (Scholte et al. 2016).

Practice

Implementation of biodiversity offsets through contracts with farmers.

Finding land for restoration and long-term management for biodiversity is a key challenge to offset implementation. Most non-urban land in Europe is used by agriculture, especially in lowlands and around cities where development is concentrated. Developers seek to design and implement offsets that are compatible with agriculture, often through voluntary contracts similar to agri-environmental schemes that farmers are familiar with under the Common Agricultural Policy.

While such contracts meet the legal requirements of the developer, concerns are raised about their additionality and the long-term duration of management actions. Findings from a large rail project in Southern France show that non-compliance with contract requirements is an important consideration in the design of the offsetting strategy and its implementation, which requires high standards of monitoring and enforcement.



image courtesy of Oc'Via

Instruments

For assessing ecological losses and gains.

Demonstrating that no net loss is achieved, or achievable, requires instruments to assess losses (impacts) in ecological functions caused by development, as well as gains from offset options, with dedicated metrics that make comparisons between losses and gains possible.

In the context of OPERAs, the suitability of US assessment methods was tested in the European context and various loss-gain approaches were developed.

A key design element of these methods is to include metrics and exchange rules. In the context of various development projects, these have focused on identifying indicators of habitat suitability – e.g. for nesting or winter feeding of bird species. To be fully operational, this has to be replicated across target species, habitats and possibly ecosystem services. It must also be integrated into an operational framework that can handle multiple no net loss targets and address trade-offs among these. Such an approach was developed and tested with stakeholders to provide a functional multi-species and multi-habitat tool for sizing offsets on the basis of residual impacts (Quétier et al., 2015b).

A similar approach was taken in another method, focusing on wetland functions, with a key goal being to overcome some of the limitations of overreliance on “*best professional judgment*”.

However, simply applying assessment and offset design methods developed somewhere else isn't straightforward. For example, no significant correlation was found between assessments of wetland conditions in France and the overall scores provided for the same wetlands by six US rapid assessment methods (Gaucherand et al., 2015).

In addition, it is important that all stakeholders involved in striking the delicate balance between development and conservation are informed and agree to the methods used. An important lesson learned from the development and testing of various methods is that strong engagement with stakeholders is a key success factor – not only for the instruments, but also for the design and implementation of the offsets themselves.

Case studies on contracting offsets to farmers

A study of offset implementation for a new high speed railway line between Nimes and Montpellier (France) shows that the main determinants of acceptability of offset contracts by farmers are economic (opportunity costs and farms facing economic difficulties) and peer pressure (Calvet et al., 2017).

In another study in northern France, the attributes having a significant effect on farmers' willingness (or reluctance) to sign offset contracts are the length of the contract and the annual payment amount (Vaissiere et al., 2016b).

These studies show that a key challenge to using contracts with farmers to achieve biodiversity offset goals (towards no net loss of biodiversity) is that farmers are reluctant to agree long-term commitments, often over several decades, which restrict their land use options. This may be acceptable, except when offset failure carries important risks for biodiversity.

The Future

Including ecosystem services in biodiversity offset policy and practice.

There are good arguments for adopting an ecosystem services focus in applying the mitigation hierarchy to development projects. However, focusing on ecosystem services must not jeopardize no net loss goals for biodiversity. Instead, ecosystem services must be used as an opportunity to strengthen equity considerations and result in better acceptance of projects and proposed offsets (Jacob et al., 2016). Moreover, no net loss targets for ecosystem services can help reduce losses of more common types of habitats and species in the wider landscape, which are currently not protected (Van Teeffelen et al. 2014; Quétier et al. 2015a; Schulp et al. 2016).



Public perceptions of biodiversity offset need to be considered. It is important to identify which ecosystem services are threatened the most from the perspective of the people who rely on and appreciate these services, and to use both biophysical and social indicators when planning to offset ecosystem services, including an understanding of who will benefit or lose out from the impacts (Jacob et al. 2016).

“Nowadays, [in developing projects] social teams (such as community relation teams) are very distinct from environmental teams within businesses, while any discussion on [...] environmental impacts requires the two to work together. We therefore use ecosystem services in workshops to tie the links between these two teams and make their commonalities and links more visible.”
Developer

“Some decisions on projects have trade-offs, e.g. between water quality and carbon sequestration. You then need to decide on a compromise that allows to bridge between carbon and biodiversity, and the concept of ecosystem service helps in doing so.”
Industrial representative

“We are still very much reactive instead of proactive. There is a lack of understanding and a lack of awareness on ecosystem services and its implementation. This means that people usually only deal with ecosystem services after having been repeatedly confronted with it, they do not see it as self-evident: no one has ever lost a project bid for not including ecosystem services!”
Consultant



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This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement number 308393.

