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Biodiversity offsetting

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The MERLIN project (<https://project-merlin.eu/>) has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036337.

Connectology (2025). MERLIN Off-the-shelf instruments – Biodiversity offsetting. MERLIN project.

The OTSI benefited from comments and inputs from the following individuals: Ana Barjasic (CONN), Paulo Andrez (CONN), Yulia Demus (CONN), Vladyslav Saviak (CONN), Tatiana Vírveda de Lucas (CONN), Kerry Waylen (JHI), Astrid Schmidt-Kloiber (BOKU), Sebastian Birk (University of Duisburg-Essen), Petra Schneemann (SAM) for design services.



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Executive summary

Biodiversity, or the variety of all living things on our planet, has been declining at an alarming rate in recent years, primarily due to human activities such as land-use changes, pollution, and climate change. As a result, biodiversity loss is widely regarded today as a global environmental crisis because of its scale and irreversibility.

Biodiversity offsetting is one response, that aims to prevent further degradation. It can be defined as **“a policy approach that seeks to minimise the environmental impacts of a development project by ensuring that any damage in one place is compensated for somewhere else.”**¹

This MERLIN project paper aims to guide the reader through the topic, beginning by analysing the **main goal** of biodiversity offsets and identifying **who can benefit** from this financial instrument. It then explains **how biodiversity offsetting works, outlining the key steps required for its implementation, including prerequisites, expected costs, and timeframes**. Following this, the document outlines the key actors involved in the process, including supporting institutions, brokers, and consultants. It concludes with **a set of best practice recommendations, suggested KPIs, and real-world case studies** to illustrate the practical application of the instrument.

Although biodiversity offsetting is gaining traction globally, it remains a relatively new instrument, especially within European regulatory and investment landscapes. It emerged over the past two decades as a response to growing environmental concerns

and the limitations of traditional conservation funding.

Biodiversity offsetting remains a contested approach within conservation policy. Critics argue that it can be easily abused – allowing environmental harm to proceed under the guise of compensation, with risks of poor enforcement, inadequate monitoring, and loss of irreplaceable habitats. Supporters, on the other hand, view it as a pragmatic tool to channel resources into restoration and achieve net environmental gains. This paper does not take a position on the merits of biodiversity offsetting; the assessment is left to the reader.

As you will see while reading this report, as we cover the different perspectives on biodiversity offsetting, we have chosen to mainly anchor them in the **English Biodiversity Net Gain (BNG)** scheme, one of the most prominent in Europe. Like any mechanism, it is not without its flaws. For a deeper exploration of the criticisms of this specific scheme, see: <https://post.parliament.uk/research-briefings/post-pn-0728/>.

We hope that after reading this paper you will be better equipped to assess if using biodiversity offsets makes sense for your freshwater restoration projects. Do not forget that under the MERLIN project more than ten other off-the-shelf instruments have been developed that can be also considered for your project.

Good luck with your freshwater restoration project!

¹ <https://www.geog.cam.ac.uk/files/research/projects/biodiversityeconomy/policybrief1.pdf>

Introduction

In the last decade, momentum around market-based solutions to biodiversity loss has grown. **On 7 July 2025, the European Commission adopted a roadmap for “nature credits”, a new mechanism that will reward farmers, foresters, and landowners for measurable biodiversity gains such as reforestation, wetland restoration, and regenerative agriculture.** The initiative aims to help fill a €37 billion annual biodiversity funding gap and is expected to launch pilot programmes by 2027. By introducing a formal governance structure for certifying nature-positive outcomes, this move intends to incentivise credit-based conservation in Europe.¹

Numerous efforts have been made in recent years to sustain and conserve endangered ecosystems and species, but the financial needs exceed the traditional governmental or European Commission grants that are available.

There are a range of ways in which governments can seek to encourage pro-biodiversity activities by private sector actors, potentially including pro-biodiversity taxes, fees, environmentally motivated subsidies, tradable permit schemes, and payments for ecosystem services. One of these instruments is called “Biodiversity Offsets” – a **policy approach that seeks to minimise the environmental impacts of a development project by ensuring that any damage in one place is compensated for somewhere else.** This means that **new developments can become neutral in terms of their impact on biodiversity by compensating for any damage through offsetting.** However, to achieve a net positive outcome for nature, the offsetting scheme must require **biodiversity gains** that go **beyond simple compensation** – for example, by mandating additional uplift, as seen in England’s

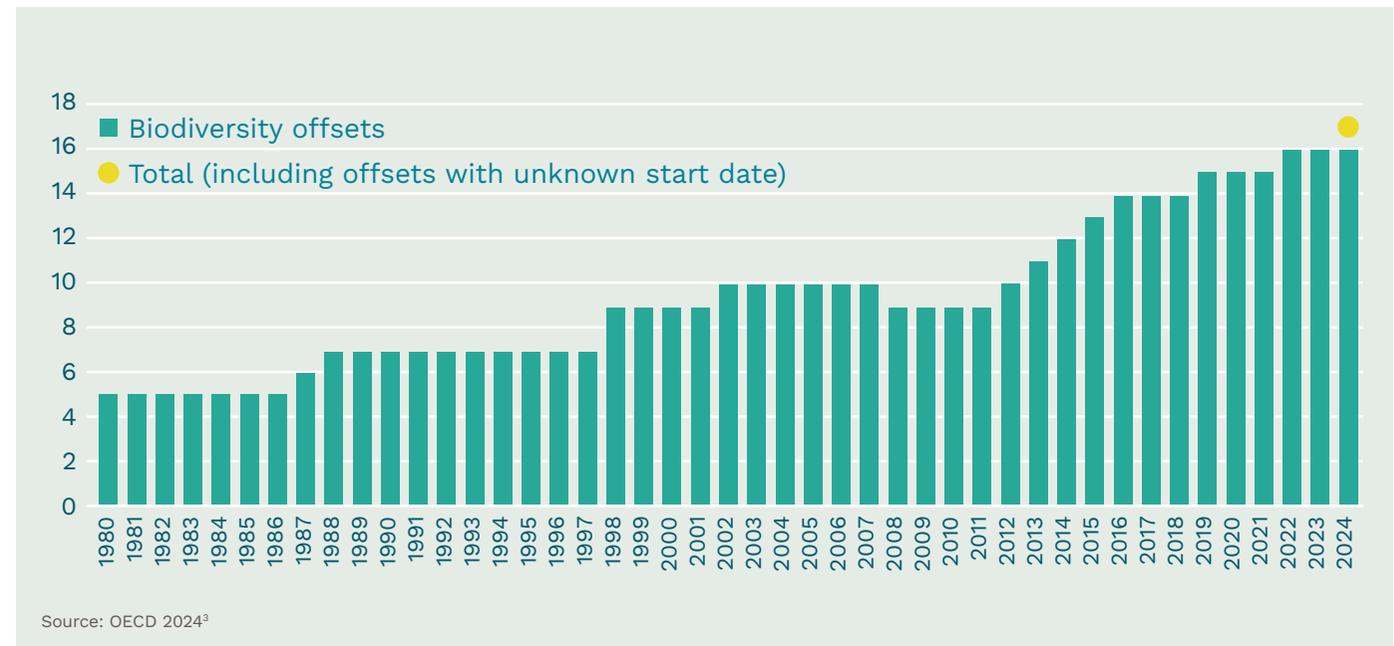
Biodiversity Net Gain (BNG) system, which requires a minimum 10% improvement.

In such offsetting schemes, those who restore biodiversity and ecosystems can benefit by generating and selling biodiversity credits – either directly to developers or through habitat banks.

Under the right conditions, **biodiversity offsets can provide much-needed funding for protected areas and similar conservation efforts.**

The use of biodiversity offset schemes has grown over time (**Figure 1**), as can be seen in this chart made by the OECD Environmental Policy Committee, the Policy Instruments for the Environment (PINE).

Figure 1: Number of biodiversity offset schemes in the 9 countries included in the PINE database.²



¹ <https://www.reuters.com/sustainability/climate-energy/eu-looks-nature-credits-fill-green-funding-gap-2025-07-07>

² The OECD Environmental Policy Committee’s Policy Instruments for the Environment (PINE) is a platform that collects and tracks data on countries’ use of environmental policy tools, such as biodiversity offsetting, across the OECD.

³ Tracking Economic Instruments and Finance for Biodiversity. (2024). OECD. Tracking Economic Instruments and Finance for Biodiversity 2024 by OECD - Issuu

Aim of the instrument

Biodiversity offsets are “measurable conservation outcomes designed to compensate for significant residual adverse biodiversity impacts arising from project development, after appropriate prevention and mitigation measures have been taken” (BBOP, 2012).¹

This instrument provides guidance on how freshwater restoration projects can benefit from biodiversity offsets, and also whether, when, and how biodiversity offsets should be used to mitigate residual negative impacts on biodiversity resulting from development or land-use change.

The aim is to ensure that these impacts are fully compensated through measurable conservation actions that result in no net loss (and ideally a net gain) of biodiversity.

Many freshwater restoration projects can be the recipients of biodiversity offsetting initiatives.

By linking development with investment in ecological restoration, biodiversity offsetting can **generate financial resources for nature restoration projects**, particularly those targeting degraded freshwater and wetland ecosystems. In many cases it also supports integrating biodiversity values into planning and decision-making processes across sectors.

¹ https://www.forest-trends.org/wp-content/uploads/imported/BBOP_Standard_Guidance_Notes_20_Mar_2012_Final_WEB.pdf



Potential beneficiaries

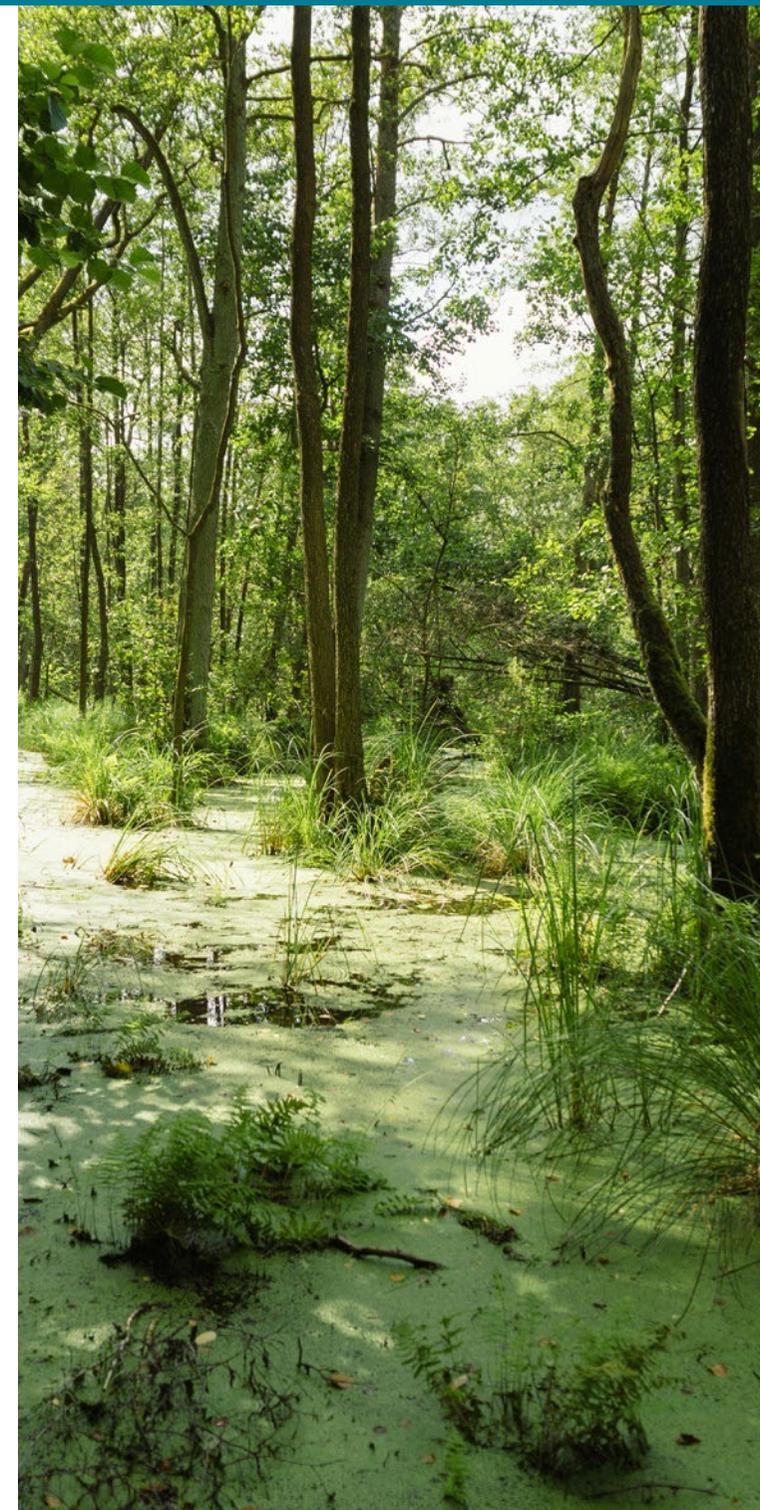
Biodiversity offset schemes involve a wide range of beneficiaries across economic, environmental, and social dimensions:

- **Project developers (offset buyers)** may include **anyone who harms biodiversity with their development project. They benefit by securing permits, complying with environmental regulations, and maintaining reputational and financial credibility.** Government transportation agencies, residential and commercial developers, extractive sector industries, and utilities are the most common buyers. Here are some examples of offsets that applied to a wide range of sectors, including **mining** (e.g., Austrian Minerals Resources Plan¹), **wind power** (e.g., Langhope Rig Wind Farm development, Scotland²); **pulp and paper** (e.g. Suzano, Brazil³); **hydropower** (e.g., Danube River Basin⁴); **oil and gas** (e.g., Rigs-to-Reefs Program, Gulf of Mexico, USA⁵); **property development** (e.g., England’s Biodiversity Net Gain (BNG)⁶), and **agriculture** (e.g., Lowland Rewilding for Biodiversity Offsetting, England⁷).
- **Offset sellers** include a **wide range of private and public entities with the capacity to create offsets**, including environmental consultants, engineers, and lawyers; private mitigation bankers; and non-profit organisations and government agencies running biodiversity conservation programmes.
- **Landowners and offset providers, including nature restoration teams** are another type of beneficiary of biodiversity offsets, receiving compensation from an entity that has created residual adverse biodiversity impacts arising from project development.

This instrument is not like taxation; the payments do not generate revenue for the government, as any damage in one place is compensated for elsewhere. Instead, governments are responsible for allocating these resources. Therefore, the beneficiaries of

biodiversity offsetting are those individuals or organisations focused on the conservation and care of the environment. Almost any land can be proposed as a receptor for offsetting. There are no upper or lower barriers to the size of the site, nor the ambition of the habitat restoration or creation project. Consequently, **any person, organisation, NGO, local authority, or protected area manager can receive funding through offsets to execute the specific conservation requirements to achieve no net loss.** For a site to be eligible to receive funding through biodiversity offsetting, it must demonstrate an intention for long-term land management that delivers a reliable increase in biodiversity value. Land that is already receiving other conservation funding of any kind may not be eligible, as offsetting must demonstrate additional benefits.

- **Affected community**, in areas affected by the project and the biodiversity offset, the participation of stakeholders should be ensured in all stages of decision-making, including evaluation, selection, design, implementation, and monitoring. **An affected community may see biodiversity offsetting as an opportunity to secure funding, jobs, and ecological improvements in their local area**, provided the measures are well-designed and genuinely implemented.
- **Governments and regulators benefit by mobilising private-sector finance to support national biodiversity goals and by facilitating the implementation of conservation policies** such as “no net loss” or “net gain”. Government entities are mandated by the law to regulate and govern biodiversity offsets. Their functions include the overall definition and regulation of the offsets, the generation and accreditation of biodiversity offsets, and market oversight powers.



1 <https://www.bmf.gv.at/en/topics/mining/mineral-resources-policy/mineral-resource-plan.html>
 2 <https://tweedforum.org/our-work/projects/langhope-rig-biodiversity-offset-conservation-projects>
 3 <https://www.fidelityinternational.com/editorial/article/biodiversity-bond-raises-the-stakes-for-paper-firms-b06bf9-en5>
 4 https://www.icpdr.org/sites/default/files/nodes/documents/guiding_principles_sustainable_hydropower_-_public.pdf
 5 <https://www.bsee.gov/sites/bsee.gov/files/rigs-to-reefs-program-fact-sheet.pdf>
 6 <https://www.theguardian.com/environment/2024/feb/12/england-brings-in-biodiversity-net-gain-rules-to-force-builders-to-compensate-for-loss-of-nature>
 7 <https://www.wsj.com/articles/global-environmentalists-find-seeds-of-hope-in-english-nature-credits-fb4a7835>



How does it work

Biodiversity offsets follow the polluter-pays principle and so aim to prevent net loss and, in many cases, achieve a net gain in biodiversity compared to the pre-project baseline. However, the rules or design of an offsetting scheme are critical. Some offsetting measures are only partial, in the sense that they result in a “reduced net loss” instead of a zero net loss, either deliberately (due to a less ambitious offset design) or as a result of an unintentional error in the design or implementation of the offsetting measures.

The objective of biodiversity offsets is to implement nature restoration in an area that is often separate and distinct from the area initially affected by the development project, to offer benefits to biodiversity at least equivalent to the harms caused by the development. Biodiversity offsets that benefit nature in other places

may be considered inappropriate for those who wish to maintain or enhance natural processes at the original development site. Suppose irrigation, mining, or any other project disrupts a community’s access to a local freshwater source. In that case, it may be necessary to support the affected population by building an alternative water source rather than maintaining a similar ecosystem through biodiversity offsets.

Offsetting can be compulsory or voluntary, depending on how the scheme is designed. If it is purely voluntary it may well not get many participants who seek to buy offsets. England’s BNG system is compulsory. This instrument only works if regulatory entities offer offsets as a mechanism to prevent biodiversity loss, if developers select it to counterbalance the damage caused to the environment by their development project, if receptor

sites deliver the correct number of conservation credits, and finally, if there is a rigorous monitoring mechanism to assess if the initial goals were achieved.

Compensation regulations across Europe include, among others:

- England’s **Biodiversity Net Gain (BNG)**¹, which is a mandatory biodiversity offsetting system under the Environment Act 2021, requiring measurable net gain (minimum +10%) for most developments.
- Germany’s **Impact Mitigation Regulation (Eingriffsregelung)**, which is a long-standing national framework requiring avoidance, mitigation, and, if necessary, ecological compensation/offsetting for impacts on nature.

¹ <https://www.gov.uk/guidance/understanding-biodiversity-net-gain>



→ Sweden's **Environmental Compensation System**², which is embedded in the Swedish Environmental Code, requires compensation measures for certain environmental impacts, particularly for Natura 2000 and other protected areas.

These three are examples of explicit, operational biodiversity offset/compensation frameworks in Europe. They are separate to EU-level directives (Habitats, Birds, ELD) which do not make any provision for offset systems, but which might indicate the priority species and habitats to be targeted when offsetting.

The implementation of biodiversity instruments is usually done through regulatory entities or brokers. In Europe the design and implementation of any specific compensation schemes are, in many cases, left to the discretion of individual member states.

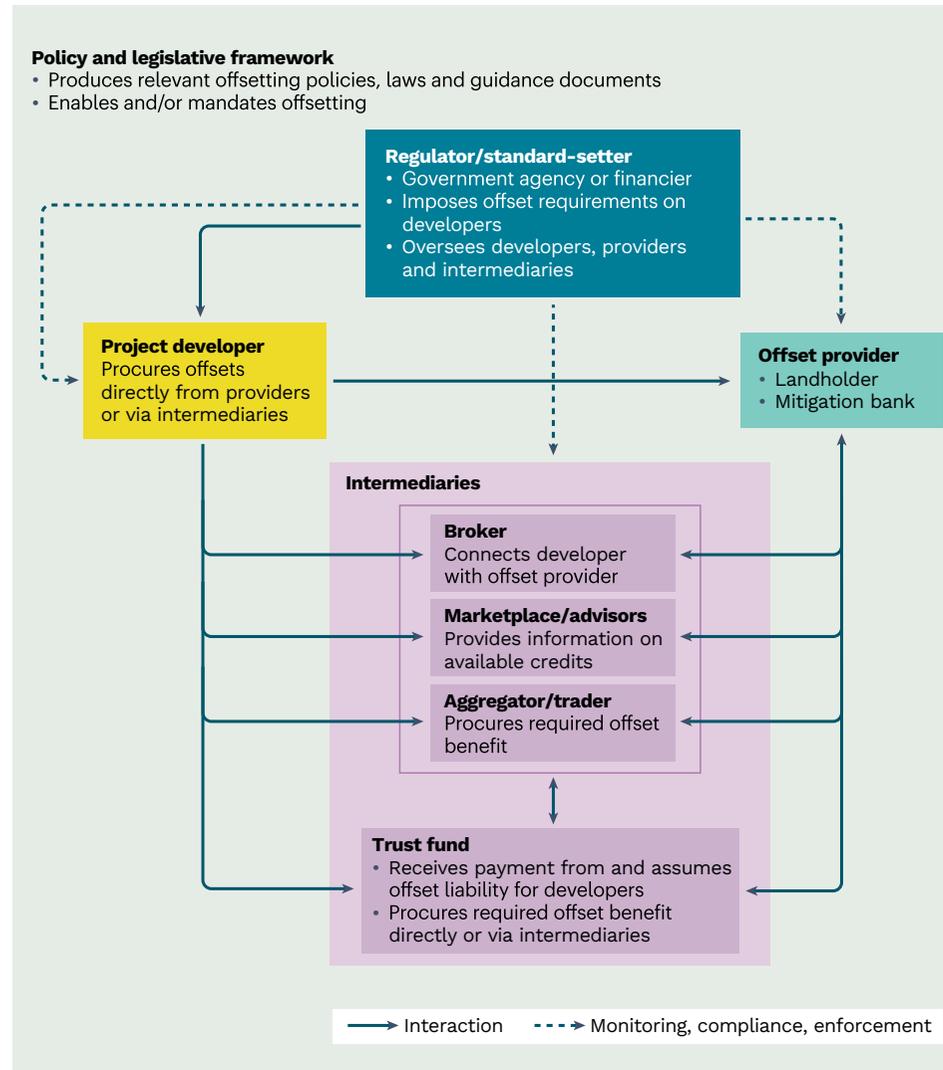
In England, for example, since 12.02.2024 BNG has become compulsory for major and minor sites. Any new developments are mandated to produce Biodiversity Net Gain under Schedule 7A of the Town and Country Planning Act 1990.³

A developer who needs to purchase biodiversity credits can contact The Environment Bank, which will be in charge of calculating the number of credits needed to offset the impact of the development plan by means of the Environmental Impact Assessment.⁴

Actors and processes

The following diagram shows the key players and relationships in delivering biodiversity offsets, taken from Maron, M., von Hase, A., Quétier, F. et al. Biodiversity offsets, their effectiveness and their role in a nature positive future.

Figure 2: Actors and organisations involved in delivering biodiversity offsets through different delivery pathways.



For example, in England's BNG scheme, any land manager interested in receiving funding for their restoration projects through biodiversity offsetting – whether a farmer, landowner, or conservation charity – can register their site on The UK Environment Bank's register and in The Environmental Market Exchange. The Environment Bank, acting as an offset seller, or the offset provider by itself, searches for a receptor site or sites that match the credits needed by the developer. When a right fit is found, the deal is closed, and agreements are arranged. Developers will make annual payments to the receptor site. Biodiversity offsets are, therefore, akin to tradable permit schemes whereby a quantitative objective for biodiversity conservation is set.

Note that if the developer chooses to meet their planning obligations by purchasing offsets from someone else, it is the units of biodiversity gain that are sold. The developer is not purchasing the biodiversity itself or the land on which it stands. The units are units of biodiversity: they are not an attempt to put a price on biodiversity. The cost of providing an offset will be calculated by the offset provider on a case-by-case basis.

If you are interested, you can find the prices for England's statutory biodiversity credits here: <https://www.gov.uk/guidance/statutory-biodiversity-credit-prices>. Private biodiversity credits may well trade more cheaply; the statutory credits are a "last resort" to ensure a developer can always promptly purchase the required credit.

Offsets for biodiversity loss may include the provision or allocation of land or water for conservation, habitat improvement, or species management, as well as other specific activities. They can be used to establish, expand, or protect existing protected areas; improve, connect, or restore habitats; and protect or manage protected species.

² The EU directives apply across all member states, while Germany and Sweden have country-specific implementation systems.

³ Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021): <https://www.legislation.gov.uk/ukpga/2021/30/schedule/14/enacted>

⁴ Environmental Impact Assessment of Projects. (2017). European Commission. https://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf

Source: Maron, M., von Hase, A., Quétier, F. et al. Biodiversity offsets, their effectiveness and their role in a nature positive future. Nat. Rev. Biodivers. 1, 183–196 (2025). <https://www.nature.com/articles/s44358-025-00023-2>



Mitigation hierarchy

Before implementing biodiversity offsetting, project developers in the majority of cases need to follow a **mitigation hierarchy**.

Although this principle directly affects project developers, guiding their sustainable actions, it also affects offset providers by limiting their financing possibilities.

This hierarchy implies that, initially, any potential damage should be avoided if possible; if it cannot be avoided, then it must be mitigated. If damage remains after avoidance and mitigation, then it must be **compensated** for as much as possible **on-site**. Only after avoidance, mitigation, and on-site compensation can any residual environmental damage be considered for **compensation off-site through biodiversity offsetting**. The process is illustrated in **Figure 3**.

Types of offsets and processes

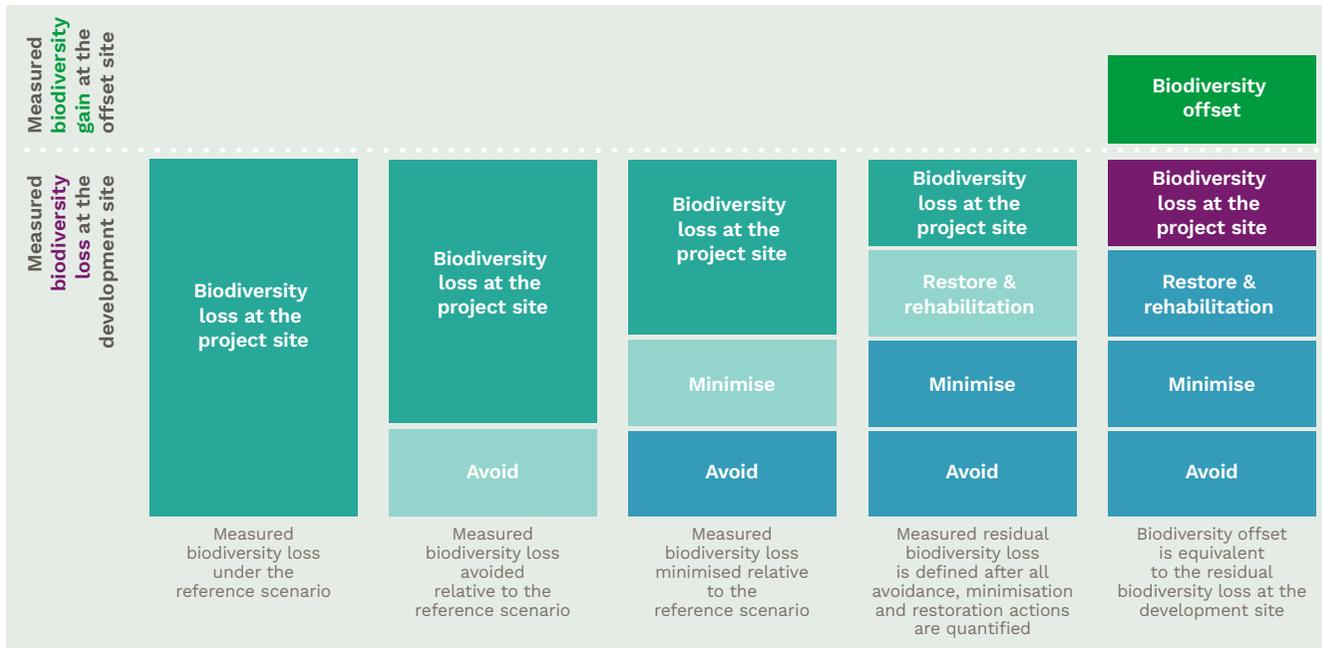
There are three types of offsets:¹

- 1. Averted loss:** When destroying a certain habitat, those responsible for damaging the environment, or project developers, buy or lease land that has similar biological conditions and commit to ensuring that this land will not be destroyed.
- 2. Creation offset:** Through financial contribution, developers enable the creation of a habitat similar to the one that will be lost. This can be from an entirely different habitat, such as the conversion of grassland to woodland or wetland.
- 3. Restoration offset:** Developers, directly or through financial contribution, restore a piece of land similar to that being destroyed in an attempt to achieve the same biodiversity values as those lost.

The different offsetting scenarios are found in **Figure 4**. Conserving biodiversity often also means conserving ecosystem services, i.e., the benefits that people derive from ecosystems. Ecosystem services include the provision of ecosystem products, such as fish and other wild foods and fresh water; protection from floods and other natural disasters, and climate regulation; sacred sites, recreation, and aesthetic enjoyment; as well as natural processes that support other services, such as pollination, soil formation, nutrient cycling, and primary production.

By working with habitat banking organisations – by leasing parcels of, typically totalling between 10 and 100 hectares, to them – developers can co-create a biologically diverse habitat bank that plays a key role in safeguarding nature and addressing crucial biodiversity loss. Costs include an initial onboarding fee, the first year's rent upfront, and then annual payments that increase with inflation for the 30-year term. Depending on the type of habitat created and its location, it is possible to earn over €30.000 per hectare.

Figure 3: The mitigation hierarchy



Source: OECD.²

Figure 4: Different offsetting scenarios



Source: Own elaboration using data from The Environment Bank³

¹ <https://doi.org/10.1016/j.biocon.2015.08.016>

² Biodiversity Offsets: Effective Design and Implementation. (2016). OECD. Biodiversity Offsets - Policy Highlights by OECD - Issuu

³ Biodiversity Offsets: A user guide. (2016). The Environmental Bank. <https://documents1.worldbank.org/curated/en/344901481176051661/pdf/110820-WP-BiodiversityOffsetsUserGuideFinalWebRevised-PUBLIC.pdf>

Pros and cons of biodiversity offsetting

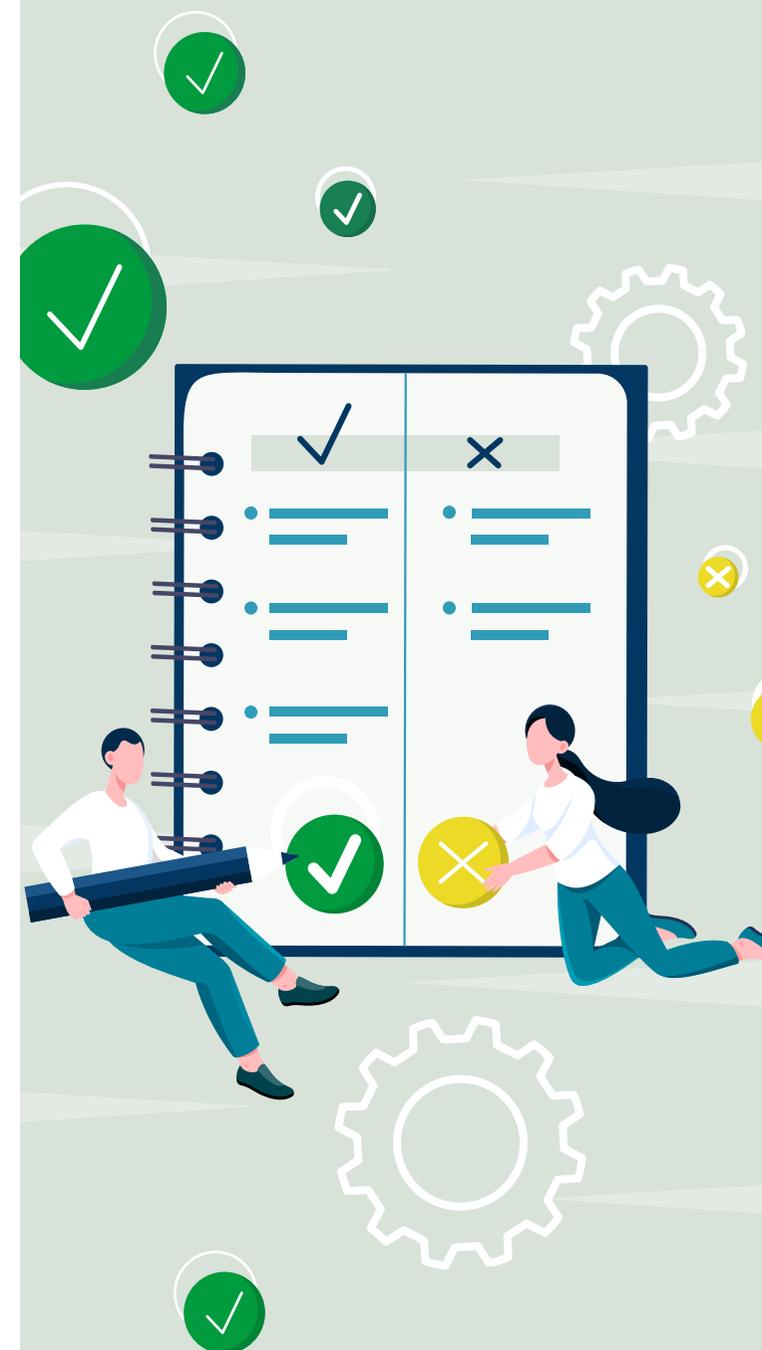
As with all activities, there are pros and cons to consider. As mentioned in the executive summary of this paper, biodiversity offsetting remains a contested approach within conservation policy. Critics argue that it can be easily abused – allowing environmental harm to proceed under the guise of compensation, with risks of poor enforcement, inadequate monitoring, and loss of irreplaceable habitats. Supporters, on the other hand, view it as a pragmatic tool to channel resources into restoration and achieve net environmental gains. This paper does not take a position on the merits of biodiversity offsetting. We have compiled a **list of pros and cons** that are usually associated with biodiversity offsetting.

Advantage of biodiversity offsetting (PROs)

- 1. Encourages accountability:** Offsets require developers to compensate for biodiversity loss, pushing them to recognise and internalise environmental costs. Damaging the environment and biodiversity is no longer free.
- 2. Quantifiable conservation goals:** Offset frameworks often involve measurable targets (e.g., “no net loss” or “net gain”), making conservation objectives clearer than vague commitments. Of course, monitoring the execution of the conservation objectives is vitally important.
- 3. Promotes mitigation hierarchy:** When properly applied, offsetting reinforces the need to first avoid, then minimise, and finally compensate for environmental harm. This policy tries to prevent abuses by which any developer can simply destroy habitats by paying a certain amount of money.
- 4. Can lead to conservation gains:** Some well-designed offset projects have delivered tangible biodiversity improvements (e.g., habitat restoration, species protection).
- 5. Drives early project rethinking:** In some cases, the complexity or cost of offsetting encourages developers to avoid high-biodiversity areas altogether or to cancel harmful projects.
- 6. Brings funding to restoration projects:** Many restoration project teams find it difficult to fund their restoration efforts. Through biodiversity offsetting, more can find the required financial resources to implement their restoration projects.

Disadvantages of biodiversity offsetting (CONs)

- 1. Execution is everything:** As Connectology advocates in its workshops for entrepreneurs launching new projects: execution is everything. Many offsets fail on their execution due to poor planning, delays, lack of follow-up, lack of monitoring, or insufficient technical expertise.
- 2. Risk of greenwashing:** Offsetting is sometimes used to justify harmful development (“license to trash”) by giving the illusion of environmental responsibility.
- 3. False equivalence:** It’s often impossible to fully replace or recreate complex ecosystems – offsets may not deliver equivalent biodiversity value.
- 4. Poor monitoring and accountability:** Long-term monitoring is rare, and enforcement mechanisms are frequently weak or under-resourced. In many cases the people that start monitoring a project are replaced by others without the critical knowledge to assess the performance of the implementation.
- 5. Displacement of harm:** Offsets can relocate biodiversity loss rather than prevent it – especially if the offset site is far from the impact area or differs ecologically.
- 6. Incompatible with “nature positive” at scale:** Traditional offsetting works at the project level, but the emerging “nature positive” agenda demands action across whole value chains and sectors.



Prerequisites to implement

The following principles must be completed to implement biodiversity offsets:

- 1. Equivalence.** As no two sites are ecologically identical, designing offsets requires an assessment of **how to achieve biodiversity benefits at the offset site that are ecologically equivalent to losses at the impact site.** Determining ecological equivalence requires a comparison of biodiversity loss and gain, as well as offset sites, in three dimensions: biodiversity type, location, and time.
- 2. Additionality.** The biodiversity improvements at offset sites should **provide new contributions to biodiversity conservation that exceed the existing levels.** A reference scenario is therefore needed. Biodiversity offsets variously consider protection, restoration, recreation, and enhancement measures as additional.
- 3. Permanence.** Biodiversity offsets should deliver **conservation outcomes for at least as long as the biodiversity loss persists at the development site.** Land tenure, financial sustainability, and appropriate incentives for land management are crucial components in delivering permanence.

In biodiversity offsetting areas, offset projects will be assessed by an **accredited institution**, such as Natural England in the UK. This institution will make a recommendation to the local authority as to whether the offset project is likely to deliver the proposed biodiversity gains, measured in biodiversity units. Then, the local authority will be responsible for determining whether the offsetting project is acceptable as compensation for biodiversity loss.

To become an **offset provider**, it is essential to consider that each proposed site will typically fall under a broader strategy, which outlines the preferred types of conservation measures (e.g., priority habitat types) and their desired locations (e.g., linking valuable wildlife sites or buffering watercourses). The offset project will typically be expected to align with this strategy.

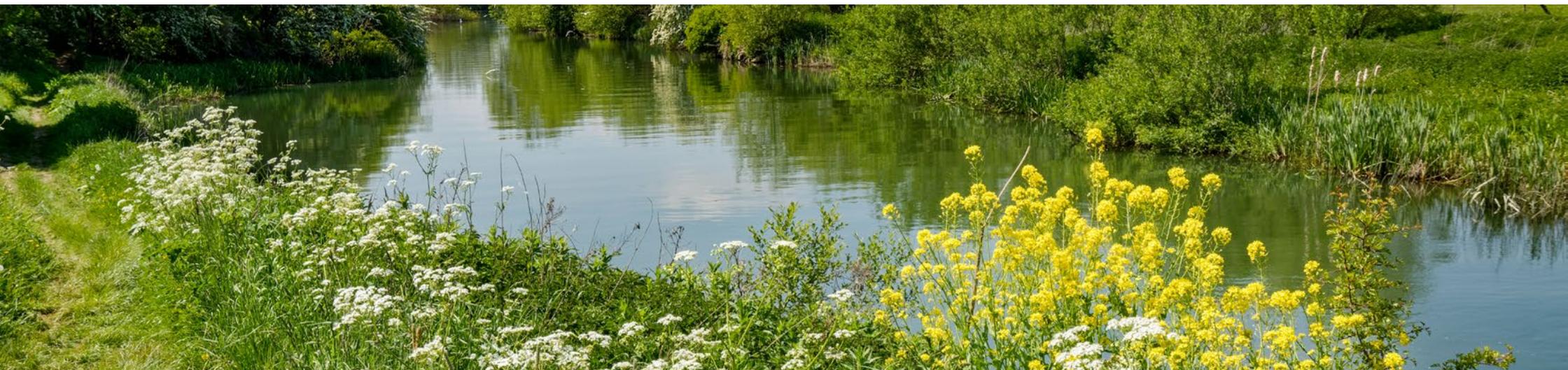
Additionally, **offsets must last at least as long as the development project's impacts, and preferably into perpetuity.** As a result, the offset provider needs to ensure that their project can commit to that duration. This also involves finances; indeed, plans for compensation will need to include managing finances so the offset can be maintained in the long term.

Moreover, to become biodiversity offset providers and receive compensation funds for offsetting biodiversity loss, landowners (receptor sites) must meet **specific eligibility criteria.** In some jurisdictions, such as New South Wales, Australia, governments have established detailed regulatory frameworks,¹ for example, the Biodiversity Conservation Regulation 2017, which sets strict eligibility and assessment rules for offset sites.

In contrast, in countries like England, where Biodiversity Net Gain (BNG)² became mandatory in 2024, organisations such as the Environment Bank help landowners participate in regulated offset markets. While landowners initiate the process by submitting basic information online, they must still meet formal biodiversity gain criteria established by the UK government, which are assessed through standardised tools such as DEFRA's Biodiversity Metric and site inspections conducted by ecological experts.

¹ <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity-offsets-scheme>

² <https://www.gov.uk/guidance/understanding-biodiversity-net-gain#what-bng-is>





How to implement biodiversity offsets

Although nature restoration teams may initially view biodiversity offsets primarily as a source of funding to restore degraded ecosystems, they can also take a more proactive role by proposing strategies to future developers whose projects will have negative impacts on biodiversity, enabling those developers to offset their impacts. In this context, we outline the key elements of implementing a biodiversity offsetting scheme, so that nature restoration teams are aware of its limitations, implications, and the overall process.

As explained in this paper, implementation processes vary across jurisdictions. Since the aim of this document is to highlight the existence of such schemes and provide interested parties with a foundation

for expanding their knowledge, we do not describe in full detail every step required to implement biodiversity offsets.

Biodiversity offsets have gained prominence in both policy and private-sector strategies over the past decade. An increasing number of regulatory frameworks and voluntary initiatives now reference biodiversity offsetting or compensation mechanisms. While challenges such as governance, monitoring, and ensuring ecological equivalence persist in implementing biodiversity offsetting, **a growing body of guidance has emerged to promote greater consistency and accountability.**

In Europe, recent policy developments, such as the **EU Biodiversity Strategy for 2030** and the **2024 Nature Restoration Law**, signal a move beyond “no net loss” toward mandatory ecosystem restoration and compensation obligations. Although the previously proposed EU No Net Loss Initiative laid important groundwork, newer instruments, such as **restoration targets** and the **integration of nature-positive principles**, have taken precedence.

In England, the mandatory **Biodiversity Net Gain (BNG)** scheme came into force in 2024, requiring developers to deliver at least a 10% net gain in biodiversity, either on-site or through approved offset providers, such as the Environment Bank. Meanwhile, countries such as France

and Germany continue to implement their national mitigation frameworks, including France’s doctrine of mitigation hierarchy and Germany’s Impact Mitigation Regulation.

Complementing these efforts, **the European Commission, in collaboration with the Institute for European Environmental Policy (IEEP), has published guidance to support the design and implementation of biodiversity compensation mechanisms**, including emerging discussions on biodiversity crediting.

The **Business and Biodiversity Offsets Programme (BBOP)** officially ceased operations in 2018.



Its materials are archived and still referenced, but the programme is not actively maintained. However, its standards continue to inform practice globally and are embedded in IFC Performance Standard 6, IUCN guidance, and tools used by institutions such as the Environment Bank.¹

In line with established principles, the effective implementation of biodiversity offsets typically involves key steps, each designed to ensure measurable conservation outcomes and long-term ecological integrity. While the IFC Performance Standard 6 (PS6) provides a robust global framework, it does not replace European Union legislation, such as the Habitats Directive or the Environmental Impact Assessment Directive; rather, it complements it.

In Natura 2000 sites, EU law is notably stricter than PS6: if adverse effects on site integrity cannot be excluded, compensatory measures are mandatory under Article 6(4) of the Habitats Directive, rather than being optional or voluntary.

Additionally, national frameworks across Europe may differ in terminology and legal enforceability, even if they follow similar structural principles.

Implementing biodiversity offsets requires a structured, multi-step process that ensures ecological effectiveness, legal compliance, and long-term sustainability. This process begins with **confirming whether a site or project is eligible** to generate biodiversity credits and **continues through technical assessments, planning, market engagement, legal agreements, and monitoring.** The following sections outline each of these **key stages** in detail, beginning with the initial eligibility criteria.

Eligibility

Before starting the process to become an offset provider, any restoration project or landholder needs to verify that offsetting is a viable option for them by checking that:

→ **Their land or project meets the eligibility criteria;**

→ **Country-specific conditions or additional eligibility criteria are applied within formal offsetting schemes.** For instance, Australia includes a “fit and proper person” test; the UK requires compliance with Biodiversity Metric 4.0 and long-term site commitments; the US mandates regulatory approval and financial assurances; and Germany uses ecological equivalence scoring under the Eingriffsregelung.

The eligibility criteria are determined by the fulfilment of the principles of equivalence, additionality and permanence established by the abovementioned framework.

In this early planning stage, it is recommended that the project manager seek advice from ecologist experts and consultants to identify the likely types of credits that will be generated on their site and the potential outcomes of implementing the instrument.

Moreover, before formally applying to become an offset provider and contacting any offset seller, landholders may also want to advertise their site. For example, for UK offset providers, they need to file the “Expression of Interest Form” (registering their property with The Environment Bank and submit an online form) to identify potential purchasers of credits. The registration of the site does not commit the potential offset provider to any action.

Technical assessment and quantifying the credits

The ecological value of a restoration project is quantified using compensatory mitigation credits, often referred to as biodiversity units. For an off-site landholder to participate in biodiversity offsetting, it is essential to accurately calculate the number of biodiversity units their land can generate and offer to offset buyers.

Using a standardised and transparent measurement method is crucial. It ensures consistency in how ecological gains and losses are evaluated, supports the principles of ecological equivalence and no net loss, and informs the application of offset ratios to manage uncertainty and guide the selection of offset sites.

To date, biodiversity offsets have primarily operated at the local or regional levels. As a result, each offset scheme has developed its own methodology, taking into account its particular context and compensation goals. In Baden-Württemberg,² Germany, for example, the soil’s natural fertility, water cycle regulation, and pollution regulation functions are scored from 1 (minimal loss) to 5 (maximum loss) per hectare of soil lost to sealing (sealed soil is scored at 0). After subtracting any mitigation and restoration measures, the remaining score is weighed against the total score of the offset measure or measures, calculated in the same manner. The score can also be translated into a monetary value using a standard rule of 1 to 5 euros per square meter, which gives a maximum financial value of €12,500 per hectare.

Harmonising metrics for biodiversity offsets is necessary, which can be done by the EBV framework³ (organised into six classes: genetic composition, species populations, species traits, community composition, ecosystem function, and ecosystem structure), together with Environmental Impact Assessment.⁴

As an offset provider, one must **commit to delivering the number of biodiversity units agreed upon in the offset contract.** How biodiversity credits are calculated is important to understand for restoration teams – this calculation establishes what makes for ‘one unit’ of biodiversity benefits that is equivalent to biodiversity harms caused elsewhere. **For details on how biodiversity units are calculated in the UK, see the appendix to this report.**

The delivery of credits is typically subject to ecological and implementation risks, such as habitat establishment delays or lower-than-expected restoration success. To address this, schemes often apply multipliers, which adjust credit values or land area to compensate for these uncertainties:

- Increase the number of hectares required to deliver a target number of units.
- Reduce the number of units that can be sold from a particular area of land.

1 <https://www.ifc.org/content/dam/ifc/doc/2010/20190627-ifc-ps-guidance-note-6-en.pdf>

2 Institute for European Environmental Policy & European Commission. (2020). Guidance on achieving no net loss or net gain of biodiversity and ecosystem services. Box 4-3. <https://ec.europa.eu/environment/nature/biodiversity/nnl/pdf/NNL%20Guidance%20-%20July%202020%20-%20Final.pdf>

3 GEO BON. (2017). What are EBVs?. Retrieved from <https://geobon.org/ebvs/what-are-ebvs/#:~:text=Essential%20Biodiversity%20Variables,trend%20in%20elements%20of%20biodiversity.>

4 European Commission. (2017). Environmental Impact Assessment of Projects. Retrieved from https://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf



Planning and agreement

The offset or biodiversity credits provider must develop a **long-term management plan that outlines the exact costs the conservation or restoration project will incur in the present and in the future.** For planning the offsetting project, input from an ecologist or other relevant experts is advisable.

Regulatory entities, such as local authorities, **will assess the offset providers and their project management plans.** The assessment will be based on providers' likely ability to deliver and sustain the offered credits in the long term, as well as their capability, involving resources, staff, skills and experience, among other factors. The assessment will be executed in line with the Biodiversity Offset Management Plan (BOMP).

The regulatory entity must approve the project management plan before it can offer biodiversity units from the offsetting project as compensation for development projects.

The aspects that the management plan must include:

- **Organisational governance** – legal and regulatory requirements
- **Project management** – objectives, success measurement, baseline condition, project design, and long-term management
- **Risk management and contingency planning**
- **Financial management**
- **Resource management** – location, land tenure, equipment, staff, and skills
- **Stakeholder engagement**
- **You will need to check what additional requirements apply in your country.** For example, in England, offset plans must comply with Natural England's templates for Biodiversity Net Gain (BNG) delivery.

Market engagement: negotiation and selling

After finding clarity on how to proceed with the restoration plan, it is necessary **to find a developer who shares the same objectives and can deliver the required number of credits.** Not all sites will be suitable or appropriate for every offset requirement, so contacting many developers will be crucial to finding the best fit.

What developers usually seek is a provider that is willing to enter into a 25-year agreement for conservation management, with informed consent of the requirements; has the land and skills suitable to deliver the required habitat enhancement; and can explain where the additional conservation management will be added to any existing schemes and management on the site.

The process of locating a suitable developer can be done in two ways, either individually or with the help of a broker. If acting individually, the offset provider should directly contact potential developers who are interested in utilising biodiversity offsets. To do so, it can utilise its own experience and previous connections or hire ecological experts or consultancies to conduct market research and identify potential developers who are undertaking a development project that may cause damage and are willing to compensate for it. If a suitable developer is then found, the negotiation process will begin.

On the other hand, using brokers to find a developer makes the process faster and easier. Brokers have access to developers through direct contacts or marketplaces, where biodiversity units can be bought and sold more easily. These marketplaces are well-known in countries such as Germany and the United Kingdom, including the Environmental Market Exchange, the

European Energy Exchange, and the Global Environmental Market.

Brokers conduct a study to identify the site(s) that best match the biodiversity, location, timescale, and cost parameters of the offset requirement. Then, the preferred site(s) are visited, and management opportunities and potential cost requirements are discussed in more detail.

In many EU countries, brokers must also ensure legal compliance under national EIA/AA (Environmental Impact Assessment/ Appropriate Assessment) regulations.

If, after studying the Biodiversity Offset Management Plan of the provider, the developer concludes, together with the governing entity and/or the broker, that a receptor site is suitable for offsetting, the negotiation process begins. The negotiation will involve details of the activities required to establish the habitats on site, the price, and the prescriptions for ongoing management, along with an outline of the timing for when specific

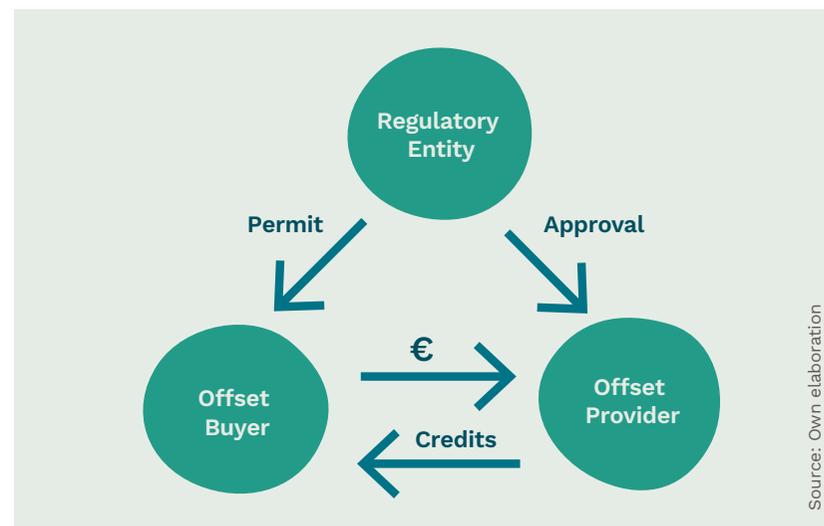
works are to be undertaken and the length of the agreement.

Depending on the local context, expected biodiversity impacts, and desired conservation outcomes (such as no net loss or, ideally, a net gain), **a variety of suitable offset activities might be chosen, including combinations of the following options:**

- Create or expand new protected areas
- Improve management of existing areas
- Restore or enhance specific habitats
- Support livelihoods or local communities
- Implement species-specific interventions
- Provide financial support

When negotiations are concluded, providers of credits enter into an agreement to sell credits to developers, offsetting the impacts on biodiversity resulting from their projects. Once the full amount for the credit sale is received, a letter of sale and Conservation Credit certificate are provided to the developer.

Figure 5: Process of negotiation and selling



Price

The approximate price of the biodiversity credits sold by the landholder is set by the provider itself, in negotiation with the offset buyer, and not by the governing entities, brokers, or markets. As a result, there is not a “set price” for each biodiversity unit; instead, the price of any credit reflects the cost of delivering biodiversity gain at that site and the overall cost of executing the restoration project. Transparency in pricing is often encouraged in voluntary markets and EU-funded schemes.

The calculation of overall costs should include establishment costs, management costs required to improve or restore biodiversity and generate credits, land costs, and profit and risk calculations.

Legal Agreements

A set of legal requirements is needed to formalise the implementation of biodiversity offsets. This legal procedure assures the regulatory entity that long-term biodiversity gain will be delivered, assures the developer that it will receive biodiversity credits in return for money, and assures the landholder that it will receive the necessary funding to carry out the conservation or restoration project for the offsetting programme. The first document required is the “Credit Offset Purchase Agreement”, noting the number, type, and price of credits being transferred.

Additionally, if a brokerage acts as an intermediary between the provider and the developer, rather than selling credits directly, additional documents may be required. In the case of finding a developer through the Environment Bank, a

“Conservation Bank Agreement” must be developed which enrolls the landowner in the long-term, approved management plan and contains clauses regarding payments, delivery, and a restriction placed on the land title.

Monitoring

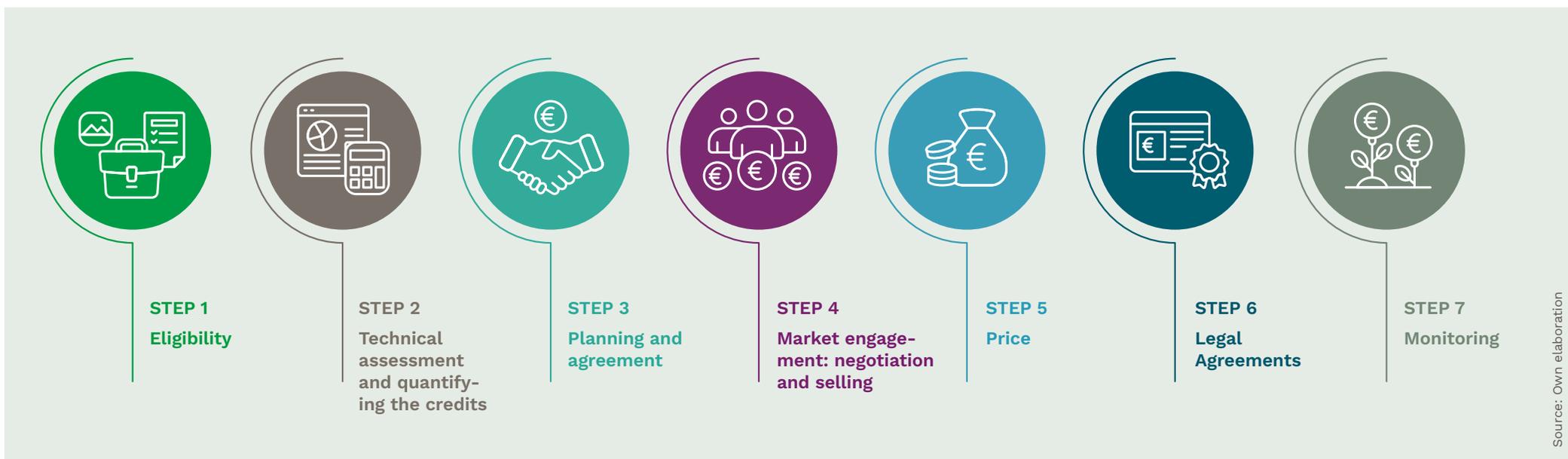
Biodiversity offsets, like other types of conservation projects, require significant investment in monitoring implementation as well as outcomes. Implementation monitoring entails diligent review by the responsible entity of whether the project is achieving the desired outcomes on the ground.

To verify that a biodiversity offset has indeed achieved its no net loss or other conservation objectives, some kind of field-based outcome monitoring is needed. Outcome monitoring activities

should be designed to be feasible to carry out in the field; to obtain much-needed information; and to avoid undue complexity. Outcome monitoring reports and data should be routinely shared with interested stakeholders.

Increasingly, remote sensing technologies, such as satellite imagery and drone-based habitat surveys, are being used to complement fieldwork, enabling efficient, large-scale, and long-term monitoring. The data collected should feed into an adaptive management framework, allowing offset providers and regulators to adjust management actions in response to observed ecological changes or unexpected challenges. Outcome monitoring reports and data should also be routinely shared with relevant stakeholders to ensure transparency and accountability.

Figure 6: A six-step approach to implementing biodiversity offsets



Expected time to implement biodiversity offsets

Implementing biodiversity offsets is a **long-term commitment**. While **the initial set-up phase**, including eligibility checks, metrics, legal agreements, and initial restoration typically **takes around two years, the total monitoring timeframe should span 15 to 30 years** (or longer), depending on the ecosystem and ecological goals. Projects typically incorporate annual field monitoring in early years, transitioning to biennial or remote monitoring and continuous adaptive management across decades.

Example: The Trans Adriatic Pipeline’s 2017 Biodiversity Offset Strategy outlines a 15-year framework with annual monitoring for the first four years, followed by biannual checks. Recent guidance confirms that real-world offsets often require multi-decade monitoring to demonstrate no net loss or net gain reliably.

Table 1: Timeframe of biodiversity offset implementation

ACTIVITY	YEAR 1				YEAR 2				YEAR 3	YEAR 4
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
PLANNING	Measure developers environmental impacts	▶	▶	▶						
	Receptor site identification			▶	▶	▶	▶			
	Development of management plans					▶	▶	▶		
	Agreement negotiation						▶	▶	▶	▶
IMPLEMENTATION	Receptor site assessment					▶	▶	▶		
	Legal procedure								▶	▶
	Formalisation of offsetting								▶	
MONITORING	Reporting								▶	▶

Source: Trans Adriatic Pipeline & RSK Group. (2017). Biodiversity Offset Strategy. <https://www.eib.org/attachments/registers/82038524.pdf>



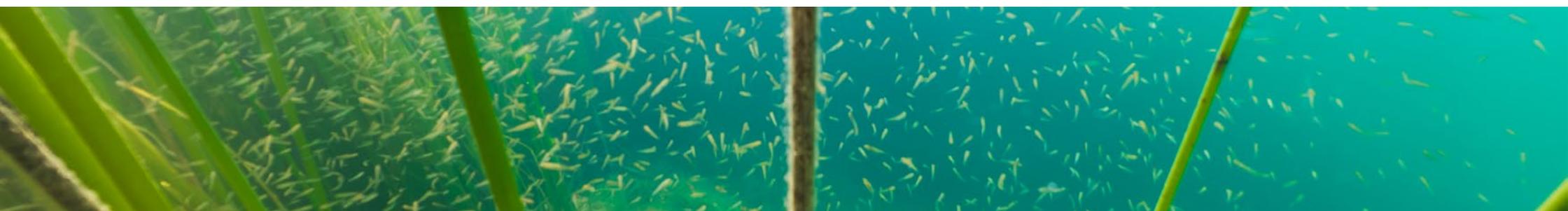
Companies supporting biodiversity offsets implementation

Transaction costs include costs associated with identifying, creating, and securing an offset programme. Reducing these administrative and time costs will increase the efficiency of an offset programme. Many institutions reduce the search costs of finding suitable developers, allowing their proponents to sell or buy

credits to mitigate the negative residual impacts of development projects. Whereas some institutions act as brokers, actively buying and selling biodiversity credits, others simply put developers and offset providers in contact.

Naturally, each actor is linked to a specific geography and jurisdiction. Some **relevant companies and other organisations** in the market are identified in the list below:

Category	Organisation	Contact Info	Website
Offset Coordinating Institution	ClimateTrade (Spain)	Phone: +34 960 06 19 47 Email: via contact form	https://climatetrade.com/
Offset Coordinating Institution	ClimatePartner (Germany)	Phone: +49 89 1222875-0 Email: germany@climatepartner.com	https://www.climatepartner.com/
Environmental Broker	Environment Bank (UK)	Phone: +441904 202990 Email: info@environmentbank.com	https://www.environmentbank.com/
Environmental Broker	BGC Environmental Brokerage (UK)	Phone: +44 (0)20 7894 7700 Email: ebs@bgcpartners.com	https://www.bgcg.com/energy_companies/bgc-environmental-brokerage/
Environmental Broker	Vertis Environmental Finance (EU)	Phone: +36 14888410 (Hungary office) Email: trading@vertis.com	https://vertis.com/
Consultancy	CDC Biodiversité (France)	Phone: +33 1 80 40 15 00 Email: contact@cdc-biodiversite.fr	https://www.cdc-biodiversite.fr/
Consultancy	The Biodiversity Consultancy (UK)	Phone: +44 1223 364 316 Email: enquiries@thebiodiversityconsultancy.com	https://www.thebiodiversityconsultancy.com/
Consultancy	Adra Ingeniería (Spain)	Phone: +34 942 27 11 34 Email: adra@adraingenieria.com	https://adraingenieria.com/
Consultancy	Buro Happold (UK/ Global)	Phone: +44 20 7927 9700 Email: info@burohappold.com	https://www.burohappold.com/



Implementing costs

In the UK, the Environment Bank calculates the number and type of credits that the proposed site management will deliver. In other countries, similar systems may exist, but approaches differ: some jurisdictions use nationally standardised metrics, while others allow regional or project-specific methodologies. Because credit calculation rules directly influence both the costs and the potential returns of participation, understanding the local regulatory framework is essential for any developer or landowner considering involvement in biodiversity or habitat banking. There is **no charge for these activities**, nor for registering the site on the national registry or with other offset seller institutions.

However, there are **costs associated** with the voluntary hiring of supporting companies to assist in correctly implementing the instrument.

Attorney fees

While studying the prerequisites for becoming an offset provider, or while closing the deal for biodiversity offsetting, hiring lawyers will ensure that the agreement is completely legal and legally binding for both parties.

Attorney fees can vary depending on the region, the lawyers' experience, and the size of the deal.

Consulting firm fees

The fee varies by region, and also depends on how experienced the consulting firm is, if there are retainers, or if it is fully a success fee.

Many consulting firms accept work on success-fee models, which means that the restoration project manager need not pay any upfront amount to the consulting firm.

The costs to pay the consulting firms vary depending on the services provided, but can vary from **2% to 7% of total revenues**.

Brokerage fees

Although in the UK the Environment Bank fulfils brokerage services without charging, other private companies, which are not solely dedicated to this business activity, usually charge between **1% and 2% of the revenue obtained** for their full-service activity. Their services may include purchasing, selling, consulting, negotiating, and delivering.

In the EU, biodiversity offset costs are typically borne by the project developer in line with the polluter-pays principle. These costs cover ecological assessments, planning, legal assurances, and long-term monitoring. While the UK employs more market-based mechanisms (such as the Environment Bank), most EU countries implement offsets through regulatory or permit-based frameworks, often integrated into Environmental Impact Assessments (EIAs) in France or the Habitats Directive in EU member states.

Best practice recommendations

We identify these best practices in order to implement a biodiversity offsetting project:

Clear objectives

It is key to establish the primary and secondary objectives, which should be set in a way that allows them to be monitored, measured, and properly evaluated. Reference to the objectives of other restoration projects may be useful in avoiding possible deviations from the goal and, thus, creating adverse effects, i.e., damaging elements of biodiversity that are not in the focus of restoration and are not taken into account. Regardless of the primary purpose, suitable indicators should be selected for evaluating the restoration project as it progresses.

Landscape context

The design and implementation of a biodiversity offset should consider the broader landscape context to ensure the anticipated measurable conservation outcomes are achieved. This process should incorporate available information on the complete spectrum of biodiversity's biological, social, and cultural values while supporting an ecosystem-based approach.

Online databases

The use of **online databases to track information** on the number and details of various restoration projects, related documents, and mitigation credit availability (in the case of biobanking), among other data, has proven to be very helpful. Such tracking systems are currently being used in Germany (i.e. NATUREG¹).

These help credit buyers find credit sellers more efficiently, reduce transaction costs, improve regulators' ability to track credit transactions (e.g., credit releases and debits), improve bank oversight and monitoring, and share information with the public, creating a more accountable and transparent offset programme.

Regular evaluations

Regular programme evaluations are critical and should ideally be undertaken by both **internal and external reviewers**. Allowing and enabling adaptive management of the restoration programme to improve it over time is a natural follow-up step.

Monitoring, reporting, and verification

Robust monitoring, reporting, and verification are **critical elements in ensuring environmentally effective restoration projects**, and a feature that many programmes need to improve upon. An important element is sufficient technical capacity and human resources to undertake adequate monitoring and enforcement, including on-site checks. Results should be communicated to the public in a transparent and timely manner.

¹ <https://natureg.hessen.de/mapapps/resources/apps/natureg/index.html?lang=en>

Suggested Key Performance Indicators (KPIs)

The primary KPIs for biodiversity offset projects are usually specified by the offset scheme itself, as these determine compliance and credit allocation. However, project-level monitoring often goes beyond scheme requirements to ensure ecological effectiveness and adaptive management.

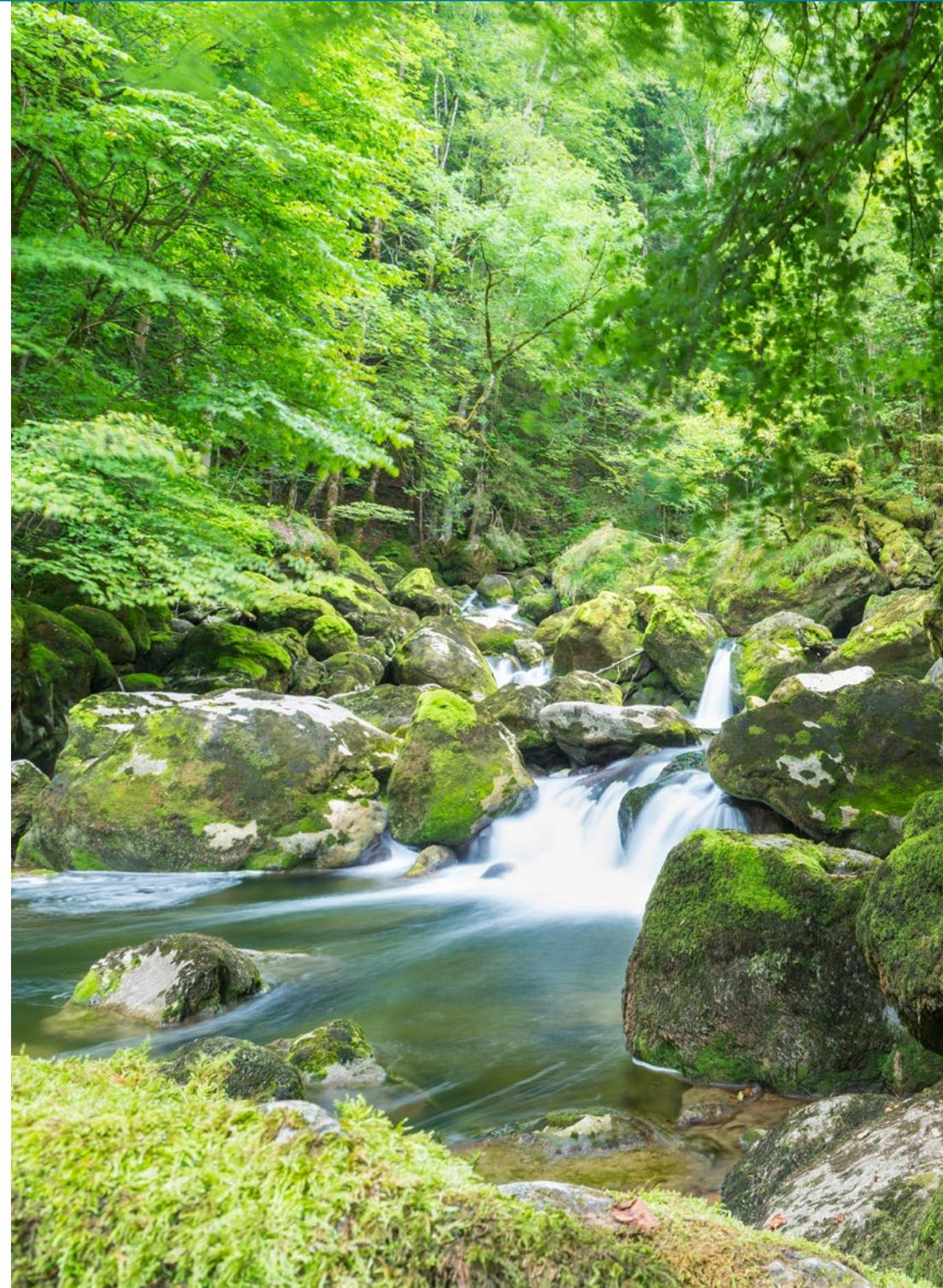
Assessment of the overall success of implemented schemes would involve making sure the execution and goals of an offset adhere to offsetting principles. In habitat conservation or restoration projects, measures of success may include vegetation surveys or comparisons of community structure, species diversity, or species richness.

For those biodiversity offsets involving some type of protected area, the **Management Effectiveness Tracking Tool (METT)**¹, developed by World Wildlife Fund (WWF) International in collaboration with the World Bank, is a useful tool to track the progress achieved in improving the quality of protected area management across a broad range of indicators.

The METT is now being used in many protected area projects. It is a standardised questionnaire that assesses various aspects of protected area management, with a theoretical “perfect” top score of approximately 100. The METT provides a useful instrument for tracking the effectiveness of protected area management and setting future goals, regardless of whether the protected area in question is part of a biodiversity offset.

Apart from this tool, many **biodiversity offset impact indicators** exist, including:

- Extension of the area with spontaneous native forest and natural tree regeneration (forest project)
- Extension of the area within the original floodplain with a natural flooding system (wetland project)
- Extension of river length without dams (river project)
- Extension of areas interconnected by removing or bridging barriers in between
- Extension of natural marshlands
- Extension of natural estuaries
- The area under new formal protection.



¹ WWF & T.W.B. (2007). Management Effectiveness Tracking Tool. https://wwfeu.awsassets.panda.org/downloads/mett2_final_version_july_2007.pdf

Successful case studies

Dasos Habitat Foundation, Finland and Eurowind Energy, Denmark¹

In the context of the Dasos BioD-Wind concept, Dasos Habitat Foundation has closed an offset contract on biodiversity with Eurowind Energy, a Danish renewable energy company. The contract concerns the Tielampi wind farm being developed in Lapinlahti, Northern Savonia, in Finland.

Tielampi wind farm is designed to avoid nature-loss to the extent possible. Residual impact on nature resulting from the wind farm, including the construction of the wind turbines and the transmission lines as well as the required road construction, **will be offset**. The offset involves nature reserves of the same habitat type being restored in the proximity of the park by Dasos Habitat Foundation.

The contract is designed within the framework of the freshly updated Finnish Nature Conservation Act of 2023. **The Act stipulates the format and metrics for measuring biodiversity, allowing for the estimation of loss/gain**. In particular, the methodology based on the Act facilitates quantifying nature loss from a construction project, such as a wind farm, as well as positive impact created by means of nature restoration and conservation. The Act also sets grounds to record offset projects in a public registry subject to approval.



Dasos Habitat Foundation, Finland and Eurowind Energy, Denmark Changing European Seas

¹ <https://www.dasos.fi/dasos-habitat-foundation-signs-a-new-biodiversity-contract-2/>

The Cossure Site in the Crau Plain, France

The **Cossure site**, located in the **Crau plain of southern France**, provides one of the best-documented examples of biodiversity offsetting in Europe. The Crau is home to a unique Mediterranean steppe ecosystem – a semi-arid grassland supporting rare species such as the little bustard (*Tetrax tetrax*) and the Crau grasshopper (*Prionotropis rhodanica*). Once covering around 600 km², the Crau steppe has been heavily reduced by agriculture, urbanisation, and industrial development, making it one of the most endangered habitats in France.

In 2008, **CDC Biodiversité**² established the Cossure site by converting a large orchard plantation into restored steppe grassland. At 357 hectares, it was the **first large-scale biodiversity offsetting project in France** and became a pioneering model of “advance” compensation. Restoration actions included the removal of non-native fruit trees and agricultural infrastructure, soil preparation to re-establish natural conditions, reintroduction of native plant species, and the use of grazing to maintain the grassland’s ecological structure. The site generated measurable ecological gains that developers with unavoidable impacts could purchase, thereby fulfilling offsetting obligations in a way that pooled resources and created a more coherent ecological outcome than isolated, project-specific measures.



Crau, stone steppe in South France

² <https://www.cdc-biodiversite.fr/la-compensation-par-loffre-cossure-1er-site-naturel-de-compensation/>
³ <https://www.ecologie.gouv.fr/politiques-publiques/sites-naturels-compensation-restauration-renaturation>

The experience at Cossure later helped shape the development of the **Sites Naturels de Compensation, de Restauration et de Renaturation (SNCR)**³ framework. The SNCR system provides the regulatory structure for advance compensation sites across France. It ensures that restoration is carried out before impacts occur, generates measurable “units” of ecological gain (UCRR), and obliges developers to purchase these units only after avoidance and minimisation measures have been applied. With state approval, long-term monitoring, and financial guarantees as core features, the SNCR formalised what the Cossure project had pioneered in practice.

Monitoring at Cossure has demonstrated the **return of characteristic steppe flora**, improvements in **habitat connectivity**, and gradual **recolonisation by steppe-dependent fauna**. By creating the site before associated development impacts took place, the project reduced the temporal gap between biodiversity loss and ecological restoration. Today, Cossure stands as a **reference site** for biodiversity offsetting in France, showing that when offsets are strategically planned, managed over the long term, and embedded in a credible governance framework, they can deliver meaningful biodiversity gains.



Macro of the red adonis flower

Conclusion

Biodiversity offsetting is not a quick fix or a substitute for avoiding harm; it is a bridge. A **bridge** that, when designed and used with care, can connect the unavoidable realities of development with the urgent need to heal and protect our natural ecosystems. It must rest on **solid foundations**: scientific rigour, long-term planning, and a genuine commitment to ecological integrity.

The **emerging European roadmap** for nature credits signals a growing ambition to build trustworthy, high-integrity mechanisms that can channel private finance into meaningful restoration efforts without losing sight of biodiversity's true worth.

Where there are developers who need to offset their biodiversity impacts, these schemes may offer opportunities for teams elsewhere who can offer biodiversity benefits.

**Good luck with your
nature restoration efforts!**



Appendix. Calculation of biodiversity units in UK

Based on the UK Statutory Biodiversity Metric (DEFRA/Natural England),¹ the number of biodiversity units is calculated considering four core criteria:

- habitat area
- distinctiveness
- condition, and
- strategic significance

Distinctiveness reflects the ecological importance of a habitat type, based on factors such as rarity and species richness. Values typically range from 2 (Low) to 8 (Very High). Condition assesses the quality of the habitat, with scores of 1 (Poor), 2 (Moderate), or 3 (Good). Strategic significance reflects whether the habitat is located in an area prioritised for conservation, scored as 1.15 (High), 1.1 (Medium), or 1 (None).

(See Tables 2, 3, and 4)

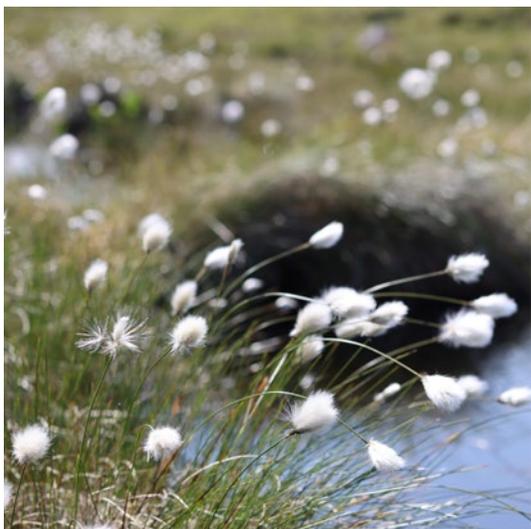


Table 2: Metric distinctiveness categories and scores applied in the biodiversity metric

Very High	8
High	6
Medium	4
Low	2
Very Low (hedgerow module)	1
Very Low (area module)	0

Table 3: Metric condition categories and scores applied in the biodiversity metric

Good	3
Fairly Good	2.5
Moderate	2
Fairly Poor	1.5
Poor	1
Condition Assessment N/A	1
N/A – Other	0

Table 4: Strategic significance categories

High	1.15
Medium	1.1
Low	1

Source: DEFRA & Natural England (2025)

The formula is as follows:

Habitat Units (HU) = Area × Distinctiveness × Condition × Strategic Significance

For example, a 20-hectare habitat with Low distinctiveness (2), Moderate condition (2), and no strategic significance (1.0) would yield:

$$HU = 20 \times 2 \times 2 \times 1.0 = 80 \text{ units}$$

If the habitat condition were improved from Moderate to Good (3), the revised score would be:

$$HU = 20 \times 2 \times 3 \times 1.0 = 120 \text{ units}$$

The net gain would then be 40 units.

To ensure credible and lasting outcomes, it is important to account for risks that may undermine offset performance. These risks include:

- **Spatial risks** – the distance of the offset from the site. If the offset is in a location identified in the offsetting strategy, no multiplier is required; if the offset is buffering, linking, restoring, or expanding a habitat outside an area identified in the offsetting strategy, the multiplier has a value equal to 2; and if the offset is not contributing to the offsetting strategy the multiplier equals 3.
- **Temporal risks** – the time it takes for a habitat to reach the target condition. Multipliers for different time periods are calculated using a 3.5% discount rate, giving a value of 1.4 if it takes 10 years to complete the offset or a value of 2 if it takes 20.
- **Delivery risks** – the difficulty of habitat creation, measured in values of Very High (10), High (3), Medium (1.5), and Low (1).

These multipliers may increase the number of units needed or reduce the units credited to an offset provider. For example, if the site is within a priority area identified in the offsetting strategy (1.0), if the improvement is expected to take 10 years (1.4), and if the habitat creation/restoration carries a medium difficulty (1.5), the HU (habitat units) stated above would change:

$$HU = (120) \times (1.0 \times 1.4 \times 1.5) = 252 \text{ units}$$

The offset provider must rely on an accredited assessor to apply the Environmental Impact Assessment and quantify a fair number of biodiversity units or credits to be offered. It is possible that environmental brokers become responsible for the assessment, such as in the case of the Environment Bank.

¹ DEFRA & Natural England (2025). The Statutory Biodiversity Metric – User Guide. Retrieved from https://assets.publishing.service.gov.uk/media/6866779ee134dfbc2e9e6d39/The_Statutory_Biodiversity_Metric_-_User_Guide_-_July_2025.pdf

Glossary

Additionality	Biodiversity offsets must ensure conservation benefits that exceed those that would occur through existing or planned initiatives unrelated to the offset.	Equivalence	A principle ensuring biodiversity offsets conserve values of the same type and quality as those being impacted, commonly referred to as “like-for-like”.
Adaptive Management	A structured, iterative process of robust decision making that adjusts restoration strategies based on monitoring outcomes.	Expression of Interest Form	A document used by prospective biodiversity offset providers to register a site with an offset institution (e.g., Environment Bank) without legal commitment.
Appropriate Assessment (AA)	A mandatory EU procedure under the Habitats Directive to assess the implications of plans/projects on Natura 2000 sites.	Fit and Proper Person Test	A regulatory criterion (e.g., in New South Wales, Australia) ensuring that offset providers meet ethical and legal eligibility standards.
Baseline Value	An estimated value of the biodiversity condition or land characteristics prior to intervention, used to define performance targets and cost estimates.	Habitat Banking	A system where landowners create or restore habitats in advance, generating credits that can be sold to developers needing biodiversity offsets.
Biodiversity Units (Credits)	A standardised metric used to quantify both the unavoidable biodiversity impacts from development activities and the corresponding offsets required.	Mitigation Hierarchy	A sequence of steps to address biodiversity impacts: avoid, minimise, restore, and then offset.
Biodiversity Offset Management Plan (BOMP)	A document submitted with resource consent applications detailing objectives, methodologies, roles, responsibilities, adaptive management strategies, monitoring approaches, and stakeholder involvement provisions.	Multiplier (Offset Ratio)	A coefficient applied to account for uncertainty, spatial/temporal mismatch, or risk, which increases the number of biodiversity units required.
Biodiversity Offset	A system used to fully offset residual biodiversity impacts associated with economic development through structured compensation measures.	Natura 2000	An EU-wide network of protected sites designated under the Birds and Habitats Directives to conserve Europe’s most valuable biodiversity.
Biodiversity Offset Scheme	A framework for offsetting unavoidable biodiversity impacts from development through landholder stewardship agreements and regulated mechanisms.	Net Gain (of Biodiversity)	A policy objective where developments result in measurable improvements in biodiversity compared to baseline conditions.
Essential Biodiversity Variables (EBV) Framework	A scientific framework that facilitates comparability of biodiversity losses and gains across locations using standard indicators.	“No Go” Areas	Zones where development is prohibited due to the likelihood of irreversible biodiversity damage.
Ecosystem Services	The broad range of benefits provided to humans by healthy ecosystems, such as water purification, pollination, and climate regulation.	Pending Issuance Units (PIUs)	Pre-certified carbon credits under schemes like the UK Woodland Carbon Code, issued before full verification.
Environmental Impact Assessment (EIA)	A regulatory procedure to evaluate the potential environmental effects of a proposed development project.	Permanence	The expectation that biodiversity offsets deliver long-term conservation outcomes, at least equal in duration to the biodiversity losses incurred.
		Polluter Pays Principle	An environmental policy that holds operators financially responsible for preventing and remediating the environmental damage they cause.
		Strategic Significance	A factor in the UK Biodiversity Metric 4.0 that assesses whether the proposed offset site contributes to broader conservation priorities.

References

1. **BBOP. (2012). Glossary of Terms.**
https://www.forest-trends.org/wp-content/uploads/imported/bbop_updated_glossary_6-july-12_v1-pdf.pdf
2. **European Commission. (2017). Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report.**
https://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf
3. **European Commission. (2020). EU Biodiversity Strategy for 2030.**
https://environment.ec.europa.eu/strategy/biodiversity-strategy-2030_en
4. **European Environment Agency (EEA). (2023). Nature Restoration Targets and Funding Instruments.**
Retrieved from <https://www.eea.europa.eu>
5. **IEEP & European Commission. (2020). Guidance on achieving no net loss or net gain of biodiversity and ecosystem services.**
<https://ec.europa.eu/environment/nature/biodiversity/nnl/pdf/NNL%20Guidance%20-%20July%202020%20-%20Final.pdf>
6. **IFC. (2019). Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.** Retrieved from <https://www.ifc.org>
7. **International Finance Corporation. (2012). Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.**
https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps6
8. **Lombardy Region. (2024). Green Fund Policy Overview and Annual Reports.**
Retrieved from <https://www.regione.lombardia.it>
9. **NSW Government. (2020). Biodiversity Assessment Method.**
<https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/biodiversity-assessment-method-2020-200438.pdf>
10. **OECD. (2024). Biodiversity Offsets Database (PINE).**
<https://www.oecd.org/environment/resources/pine.htm>
11. **OECD. (2024). Biodiversity Positive Taxes.**
Retrieved from <https://www.oecd.org/>
12. **S.I.F.A.V. Platform (Sistema Informativo Fondo Aree Verdi). (2023).** Lombardy Regional Government, Italy.
13. **Scottish Forestry. (2023). Woodland Carbon Code Annual Report.**
Retrieved from <https://forestry.gov.scot>
14. **Trans Adriatic Pipeline & RSK Group. (2017). Biodiversity Offset Strategy.**
<https://www.eib.org/attachments/registers/82038524.pdf>
15. **Trees for Life. (2024). Community Carbon Share Scheme.**
Retrieved from <https://treesforlife.org.uk>
16. **Tucker, G. (2016). Biodiversity offsetting in Germany.**
<https://ieep.eu/wp-content/uploads/2022/12/DE-Biodiversity-Offsetting-final.pdf>
17. **UK Woodland Carbon Code. (2024). Carbon Accreditation and Pending Issuance Units (PIUs).**
Retrieved from <https://woodlandcarboncode.org.uk>
18. **WWF & World Bank. (2007). Management Effectiveness Tracking Tool (METT).**
https://wwfeu.awsassets.panda.org/downloads/mett2_final_version_july_2007.pdf
19. **World Bank. (2016). Biodiversity Offsets: A User Guide.**
<https://documents1.worldbank.org/curated/en/344901481176051661/pdf/110820-WP-BiodiversityOffsetsUserGuideFinalWebRevised-PUBLIC.pdf>

