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# STATE OF EUROPEAN MARKETS 2017

## Biodiversity Offsets and Compensation

Ecosystem Marketplace
A FOREST TRENDS INITIATIVE

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# State of European Markets 2017

# Biodiversity Offsets and Compensation

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## ACRONYMS

| | |
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| **BBOP** | Business and Biodiversity Offsets Programme |
| **Defra** | Department of Environment, Food and Rural Affairs |
| **EU** | European Union |
| **IUCN** | International Union for Conservation of Nature |
| **NCFF** | Natural Capital Financing Facility |
| **SAC** | Special Area of Conservation |
| **SCI** | Site of Community Interest |
| **SPA** | Special Protection Area |

## GLOSSARY

**Advance mitigation:** Mitigation activities implemented prior to development impacts.

**Avoidance:** Measures taken to avoid creating impacts from the outset of project development, such as careful spatial or temporal placement of elements of infrastructure, in order to completely avoid impacts on certain components of biodiversity.

**Compensation:** See "Financial compensation."

**Credit:** A defined unit of environmental goods or services that can be applied toward compliance with a permit, held, traded, sold or retired. Credits may be measured in terms of mass, acreage, functional units, or other assessment methods. In biodiversity markets a credit is a defined unit representing the accrual or attainment of ecological functions and/or services at a compensatory mitigation site or within a compensatory mitigation programme.

**Environmental Impact Assessment:** A formal process, including public consultation, in which all relevant environmental consequences of a project are identified and assessed before authorisation is granted.

**Financial compensation:** A third-party mechanism that collects and administers fees from developers to offset their impacts to biodiversity. The money may go directly towards compensating biodiversity loss or to more indirect biodiversity-related projects (i.e., funding protected area management or research).

**Like-for-like equivalency:** Conservation (through a biodiversity offset) that closely resembles the species composition, habitat structure and/or ecosystem function as that affected by the development project, in close proximity to the impact site and without temporal loss of biodiversity values. Also referred to as "in-kind."

**Like-for-like or better equivalency:** Conservation (through a biodiversity offset) that meets the standards of like-for-like equivalency, or results in species composition, habitat structure, and/or ecosystem function of higher conservation significance than that affected by the project.

**Minimisation:** Measures taken to reduce the duration, intensity and/or extent of impacts (including direct, indirect and cumulative impacts, as appropriate) that cannot be completely avoided, as far as is practically feasible.

**Mitigation:** This terms refers to the overall process proscribed by the mitigation hierarchy of avoiding, minimising, restoring/rehabilitating, and then offsetting or compensating for negative impacts to biodiversity.

**Mitigation bank ("bank"):** A site, or suite of sites, where resources (e.g., wetlands, streams, habitat, species) are restored, established, enhanced and/or preserved for the purpose of providing compensatory mitigation for future impacts. In general, a mitigation bank sells compensatory mitigation credits to developers whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor. Also referred to as a "habitat bank" or "species bank."

**Mitigation hierarchy:** A process for managing negative impacts of a development project in order to achieve no net loss of biodiversity or net gain. The mitigation hierarchy consists of four sequential steps: avoid, minimise, restore/rehabilitate, and offset/compensate. Within the mitigation hierarchy framework, offsets and compensation are undertaken only as a last resort after all other reasonable measures have been taken first. Correct application of the mitigation hierarchy is widely considered a fundamental best practice for compensatory mitigation.

**Natura 2000:** A network of nature protection areas in the European Union. Natura 2000 sites include Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Birds Directive. SPAs are established by Member States themselves. SACs are selected by the European Commission from a list of sites submitted by Member States.

**Net gain:** A target for a development project in which the losses associated with impacts on biodiversity, ecosystem function, or ecosystem services caused by the project are exceeded by measures taken to avoid and minimise the project's impacts, to undertake restoration, and finally to offset or compensate for the residual impacts.

**No net loss:** A target for a development project in which the impacts on biodiversity, ecosystem function, or ecosystem services caused by the project are balanced or outweighed by measures taken to avoid and minimise the project's impacts, to undertake restoration, and finally to offset or compensate for the residual impacts, so that no loss remains. Where the gain exceeds the loss, the term "net gain" may be used.

**Offset:** This term refers to a quantified environmental benefit that is designed to compensate for any residual adverse impacts to habitat, environmental functions, or ecosystem services that cannot be avoided, minimised, and/or rehabilitated or restored. Offsets can take the form of positive management interventions such as restoration of degraded habitat, arrested degradation, or averted risk. Averted risk refers to protecting areas where there is imminent or projected loss of biodiversity. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function, and people's use and cultural values associated with biodiversity. Offsets can be implemented by either the party directly responsible for adverse impacts or a subcontractor of that party (known as "one-off offsets") or by a third party developing offset credits in advance of impacts (known as "mitigation banking").

**One-off offset:** "Do-it-yourself" offsetting conducted by the developer or a subcontractor (as opposed to a third party). Also known in the United States as "permittee-responsible mitigation," in which the permittee is responsible for compensatory mitigation of adverse impacts.

**Programme:** The overarching system that facilitates transactions between buyers and sellers, linked by a common administrator and/or market infrastructure (such as an exchange mechanism, crediting protocol, or regulatory framework). A programme can encompass many distinct projects.

**Project:** A site, or suite of sites, where restoration, enhancement, or other resource conservation actions are implemented.

**Rehabilitation/restoration:** Measures taken to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and/or minimised.

**Relaxed equivalency:** Conservation (through a biodiversity offset) where offset actions do not result in similar or the same species composition, habitat structure, and/or ecosystem function as that affected by the project, or conservation where actions are a significant distance from the impact site or entail temporal loss. Also referred to as "out-of-kind."

**Temporal loss:** A deficit in biodiversity values that exists for a period of time after negative impacts from development and before an offset site is mature, e.g., reaches full ecosystem function or desired species composition/habitat structure. Temporal loss may be addressed through advance mitigation, discounting, or other risk mitigation approaches.

# 1. INTRODUCTION

The Millennium Ecosystem Assessment, a global review of the threats posed to biodiversity and ecosystem services by humans, suggests that the main danger to biodiversity in this century is fragmentation, degradation, or destruction of habitats due to land use change for agriculture and development (Millennium Ecosystem Assessment 2005). In that assessment, Europe had the dubious honour of having the greatest degree of human-induced habitat fragmentation of any continent.

A year after the Millennium Assessment was launched, world leaders at the 2002 World Summit on Sustainable Development agreed on a target of ‘‘a significant reduction in the current rate of loss of biological diversity’’ by 2010–a first major step in global action on biodiversity loss. That goal was actually less ambitious than the one Europe set for itself: European heads of state had already announced a plan to put a full *halt* to the decline of biodiversity in the European Union and to restore habitats and natural systems by 2010.

A 2006 communication from the European Commission reaffirmed those goals even as it admitted that a "real risk of failure" existed (European Commission 2006b). By 2010, 65% of priority habitats were in “unfavourable” conservation status primarily due to human impacts, and an estimated 25% of animal species in Europe faced extinction.

When Europe failed to meet the 2010 target, a new strategy in 2010 moved the goalposts to 2020. Yet a mid-term review in 2015 still found “overall negative trends” in biodiversity and ecosystem health compared with the 2010 baseline and again called for stronger efforts (European Commission 2015). The mid-term review warned that opportunity costs of failure to meet the 2020 target could exceed €50 billion (B) annually, and that one in six jobs in the European Union depended on nature.

As Europe struggles to reverse the trend of biodiversity loss and ecosystem services degradation, attention has turned to the major driver of the decline: development. Linking development permissions to requirements that the developer make every effort to **avoid**,[1] **minimise**, **restore** or **rehabilitate**, and then **offset** impacts to biodiversity, a concept known as **mitigation**, offers an opportunity to expand protections for biodiversity beyond what is currently covered by regulation. Mitigation requirements can also generate new finance for conservation and create incentives to protect biodiversity. In cases where negative impacts from development are unavoidable, offsets and **financial compensation** requirements (collectively referred to in this report as “offsets and compensation” or “compensatory mitigation”) can ensure that equivalent or equally ecologically valuable resources are restored or re-established, ensuring that **no net loss** or even a **net gain** of biodiversity is achieved.

This is the potential of offsets and compensation in theory, at any rate. Legitimate concerns have arisen regarding the efficacy of biodiversity offsets and compensation in actual application. Some critiques are practical: will compliance and enforcement be adequate? Will the **mitigation hierarchy** really be fully applied, or will offsetting simply be a cover for “green-lighting” inappropriate development? Can monitoring, reporting, and verification practices effectively track no net loss over the long term? Other concerns are ethical in nature: Can cultural and spiritual values associated with specific places or ecosystem functions ever really be offset? For the individual animals and plants losing their homes to human development, what good is offsetting?

Some following the current debate may not be aware that biodiversity offsets and compensation actually have a long history in Europe. We believe that ecosystem market mechanisms, properly applied, have tremendous potential to contribute to conservation–but that they can do so only when transparency exists and decision-makers have access to good information. In that spirit, this report aims to benchmark the scope and scale of both compliance-driven and voluntary biodiversity offsets and compensation in Europe as of 2015. We also provide a basic overview of fundamental concepts, international best practice, and design recommendations for effective biodiversity offsets and compensation. It is our hope that this report functions as a useful resource in understanding

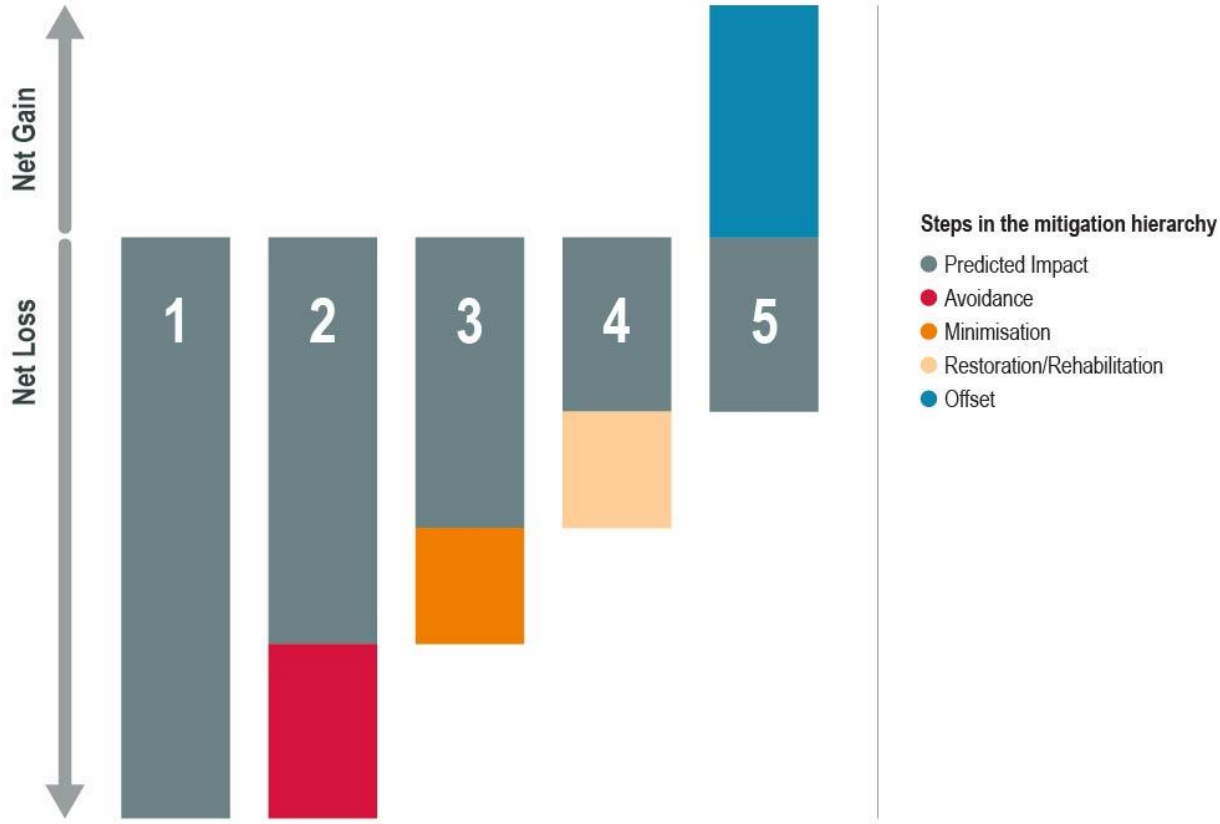
[1] All terms in **bold blue** text are defined in the Glossary section of this report.

current practice and trends, in order to better inform decision-making going forward, and in identifying where new opportunities may exist to strengthen existing mitigation mechanisms or appropriately apply them in new contexts.

## 2. BIODIVERSITY MITIGATION: THE BASICS

This report tracks biodiversity offsets and compensation driven by the mitigation hierarchy (Figure 1). The mitigation hierarchy is a set of steps for achieving no net loss of biodiversity. When a development project, such as construction of a new road, is likely to have negative impacts for biodiversity, the mitigation hierarchy dictates the following process. First, potential negative impacts are assessed (Step 1 in Figure 1) and then avoided to the greatest extent possible (Step 2). Next, impacts that cannot be avoided are minimised (Step 3) and habitat is restored or rehabilitated (Step 4) as much as possible. Finally, *as a last resort* any residual negative impacts are offset or compensated for (Step 5). Typically, offsets aim to deliver greater biodiversity values (in terms of land area or habitat quality) than those that have been lost, in order to achieve net gain.

Figure 1: The Mitigation Hierarchy Concept




### Compensatory Mitigation Types

We distinguish between three primary forms of biodiversity compensatory mitigation: **one-off offsets**, **financial compensation**, and **mitigation banking** (Table 1). One-off offsets refer to actions undertaken to compensate for residual adverse impacts to biodiversity directly by the party responsible for those impacts (or a subcontractor of that party). Alternatively, the impacting entity might instead set aside funds for biodiversity management or

protection, or make a financial contribution to an existing environmental fund–a practice referred to in this report as financial compensation. Finally, in some cases the impacting entity might be able to purchase offset **credits** from a mitigation bank operated by a third party that has already carried out **advance mitigation**, e.g., actions to restore, enhance, create, or protect biodiversity values prior to any negative impacts from development. Developers can also create their own mitigation banks to ensure a supply for credits for future projects.

**Drivers**

Offsets and compensation mechanisms seek to internalise the costs to society of biodiversity loss. For example, if a company is required by regulation to offset or compensate for its residual impacts to species or habitats, it must either bear those costs or choose to develop elsewhere, where impacts will be lower. Similarly, new incentives for conservation can be created. For example, landowners may realise they can profit from conserving biodiversity values by developing a mitigation bank.

Offsets and compensation are usually compliance-driven. Regulations can require that the mitigation hierarchy is applied in development, establish legal protections for specific species or habitats, and set limits (such as no net loss of wetlands) on acceptable loss. Although development projects with net negative impacts to biodiversity may still be approved if there is overriding public interest, the idea is to encourage development in places where impacts are minimal.

Developers might also offset their biodiversity impacts voluntarily, driven by ethical or philanthropic motives, or to manage reputational and brand concerns. Some voluntary activities are carried out in anticipation of forthcoming regulations, known as pre-compliance offsets or compensation.

Table 1: Features of Offsets and Compensation Mechanisms

| | One-Off Offsets | Financial Compensation | Mitigation Banking |
|---|---|---|---|
| **Driver** | Compliance or voluntary | Compliance or voluntary | Compliance |
| **Policy Examples** | Offsets under various Environmental Impact Assessment laws | Brazil's Industrial impact compensation | United States wetland mitigation banking |
| **Implementation Complexity** | Medium | Low | High |
| **Required Market Infrastructure** | Low to medium | Low | High |
| **Broad-Scale/Landscape Conservation Potential** | Less likely | Dependent on design | More likely |
| **Ecological Effectiveness** | Dependent on design and enforcement | Dependent on design and enforcement | Dependent on design and enforcement |
| **Who Carries Out Compensatory Mitigation?** | The developer | Government or non-governmental organisation managing financial compensation mechanism | Third-party banker, government, or developer |
| **Transparency** | Less likely | Moderately likely | More likely |

*Source: Adapted from Madsen et al 2010.*

**Best Practice in Offsetting**

Achieving no net loss or net gain through offsetting depends on good offset design. Project developers and regulators face a number of challenges, from choosing metrics and demonstrating equivalence, to managing inherent uncertainties in ecological restoration and project performance. Effective offsetting frameworks require careful consideration of these challenges. Table 2 summarises typical challenges and common design recommendations in the current literature on biodiversity offsetting.

The Business and Biodiversity Offsets Programme (BBOP) is a collaborative network of more than 80 organisations and individuals involved in offsetting policy and practice including companies, financial institutions, government agencies and civil society organisations. BBOP has developed a set of principles for international best practice in biodiversity offsets, informed by the on-the-ground experiences of its business partners (Box 1). BBOP also released a Standard on Biodiversity Offsets in 2012 to guide companies and auditors in designing and implementing offsets in accordance with these principles (BBOP 2012).

Table 2: Challenges and Design Recommendations in Biodiversity Offsetting

| Problem | Description | Design Recommendations |
|---|---|---|
| **Currency** | Choosing metrics for measuring biodiversity | Use multiple or compound metrics<br>Incorporate measure of ecological function as well as biodiversity |
| **No Net Loss** | Defining requirements for demonstrating no net loss of biodiversity | Measure no net loss against dynamic baseline, incorporating trends<br>State whether no net loss is at project or landscape level<br>Consider discounting rate |
| **Equivalence** | Demonstrating equivalence between biodiversity losses and gains | Do not allow "out of kind" trading unless "trading up" from losses that have little or no conservation value |
| **Longevity** | Defining how long offset schemes should endure | Offsets should last at least as long as the impacts of development<br>Offsets should be adaptively managed for change |
| **Time lag** | Deciding whether to allow a temporal gap between development and offset gains | Require offsets to be delivered through biodiversity banking mechanisms |
| **Uncertainty** | Managing for uncertainties throughout the offset process | Development of a framework for uncertainty in offsets is a research requirement |
| **Reversibility** | Defining how reversible development impacts must be | Define reversibility<br>Require all biodiversity offsets to be reversible |
| **Thresholds** | Defining threshold biodiversity values beyond which offsets are not acceptable | Define explicit thresholds for impacts that cannot be offset |

*Source: Bull et al. 2013.*

## Box 1: The BBOP Principles

These principles establish a framework for designing and implementing biodiversity offsets and verifying their success. Biodiversity offsets should be designed to comply with all relevant national and international law, and planned and implemented in accordance with the Convention on Biological Diversity and its ecosystem approach, as articulated in National Biodiversity Strategies and Action Plans.

1. **Adherence to the mitigation hierarchy:** A biodiversity offset is a commitment to compensate for significant residual adverse impacts on biodiversity identified after appropriate avoidance, minimisation and on-site rehabilitation measures have been taken according to the mitigation hierarchy.
2. **Limits to what can be offset:** There are situations where residual impacts cannot be fully compensated for by a biodiversity offset because of the irreplaceability or vulnerability of the biodiversity affected.
3. **Landscape context:** A biodiversity offset should be designed and implemented in a landscape context to achieve the expected measurable conservation outcomes taking into account available information on the full range of biological, social, and cultural values of biodiversity and supporting an ecosystem approach.
4. **No net loss:** A biodiversity offset should be designed and implemented to achieve *in situ* [e.g., on-site or locally], measurable conservation outcomes that can reasonably be expected to result in no net loss and preferably a net gain of biodiversity.
5. **Additional conservation outcomes:** A biodiversity offset should achieve conservation outcomes above and beyond results that would have occurred if the offset had not taken place. Offset design and implementation should avoid displacing activities harmful to biodiversity to other locations.
6. **Stakeholder participation:** In areas affected by the project and by the biodiversity offset, the effective participation of stakeholders should be ensured in decision-making about biodiversity offsets, including their evaluation, selection, design, and implementation and monitoring.
7. **Equity:** A biodiversity offset should be designed and implemented in an equitable manner, which means the sharing among stakeholders of the rights and responsibilities, risks and rewards associated with a project and offset is in a fair and balanced way, respecting legal and customary arrangements. Special consideration should be given to respecting both internationally and nationally recognised rights of indigenous peoples and local communities.
8. **Long-term outcomes:** The design and implementation of a biodiversity offset should be based on an adaptive management approach, incorporating monitoring and evaluation, with the objective of securing outcomes that last at least as long as the project's impacts and preferably in perpetuity.
9. **Transparency:** The design and implementation of a biodiversity offset, and communication of its results to the public, should be undertaken in a transparent and timely manner.
10. **Science and traditional knowledge:** The design and implementation of a biodiversity offset should be a documented process informed by sound science, including an appropriate consideration of traditional knowledge.

*Source: BBOP 2013.*

## 3. SCOPE AND METHODOLOGY

This report summarises findings from a research study conducted during April through December 2016 gathering data on the size, scope, and direction of biodiversity offsets and compensation mechanisms in Europe. Our research scope included both European Union (EU) Member States and non-EU countries i.e., Norway, Iceland, Liechtenstein, Albania, Switzerland, Macedonia, and Montenegro.

Data was collected through a survey disseminated online to programme administrators, project developers, and other market actors; semi-structured telephone interviews with the same group and with other experts in the field; and desk research investigating programme reports, donor reports and databases, academic journal articles, project registries, and other primary and secondary sources.

We identified a total of 65 **programmes** and 180 implemented or in-development **projects** as of 2015. A programme is the overarching system facilitating transactions between buyers and sellers, linked by a common administrator and/or market infrastructure. Given the variety of programme frameworks supporting biodiversity mitigation, our definition of programmes included all of the following examples.

1. Legal requirements and policy context (national, state or municipal) within which a biodiversity offset can be designed and implemented
2. Specific programmes administered by a project developer or agency
3. EU regulations such as the Habitats Directive (Council Directive 92/43/EEC) requiring compensatory measures that have been transposed at the national or subnational level into legislation and policy

A programme can encompass many distinct projects. Projects are defined as the specific site, or suite of sites, where restoration, enhancement, or other resource conservation actions are implemented for the purposes of marketing the resulting ecosystem service assets or outcomes to buyers. We collect data on transactions and impacts primarily at the project level.

“Implemented” means there are “shovels in the ground,” e.g., conservation actions have begun to be carried out, even if conservation benefits may not begin to accrue for some time and all transactions associated with the project have not yet been completed. “In development” means that a project is still in a planning stage.

While this study aims to offer an overview of biodiversity offsets and compensation activity in Europe, it is by no means comprehensive. Given finite time and resources, a broad scope, the inherent limitations of survey-based research, and the opacity of many compensatory mitigation programmes, we cannot capture all activity. Some project developers are more willing to share data than others; some programmes make more data publicly available through registries and other means. For example, Germany’s Impact Mitigation Regulation (*Eingriffsregelung*) is prominent throughout this report. This is in part because it is the largest European ecological compensation programme. But it is also because many regional programme administrators also maintain easily accessed public registries of compensatory interventions.

Throughout the report we have tried to provide details on the sample sizes of data on which our analysis is based, to provide some sense of our confidence in findings. We do not extrapolate from the data; all findings can reasonably be considered a conservative or minimal estimate of actual activity. A list of programmes and projects by country is provided in Table 3.

| Table 3: Respondents Breakdown by Country | | |
|---|---|---|
| **Country** | **Number of Programmes Identified** | **Number of Projects Identified** |
| **Austria** | 5 | 2 |
| **Belgium** | 2 | 7 |
| **Denmark** | 2 | 0 |
| **Finland** | 4 | 1 |
| **France** | 5 | 9 |
| **Germany** | 8 | 65 |
| **Hungary** | 0 | 1 |
| **Iceland** | 1 | 1 |
| **Italy** | 2 | 63 |
| **The Netherlands** | 6 | 2 |
| **Norway** | 1 | 3 |
| **Spain** | 6 | 2 |
| **Sweden** | 5 | 11 |
| **Switzerland** | 1 | 5 |
| **United Kingdom** | 14 | 8 |
| **EU-level** | 3 | - |
| **TOTAL** | 65 | 180 |

*Notes: EU-level regulations that have been transposed into national regulation are counted only once, at the EU-level. Thus the "Programmes" count for countries includes only individual countries' own unique national or subnational programmes.*

This report also presents information about the current status and practices of selected country-level projects and programmes with the aim of providing information on important regulations, institutions, and experiences implementing offsets and compensation in Europe. Case studies were selected using a logical framework developed in alignment with current European policies on environmental impacts compensation that included the following questions.

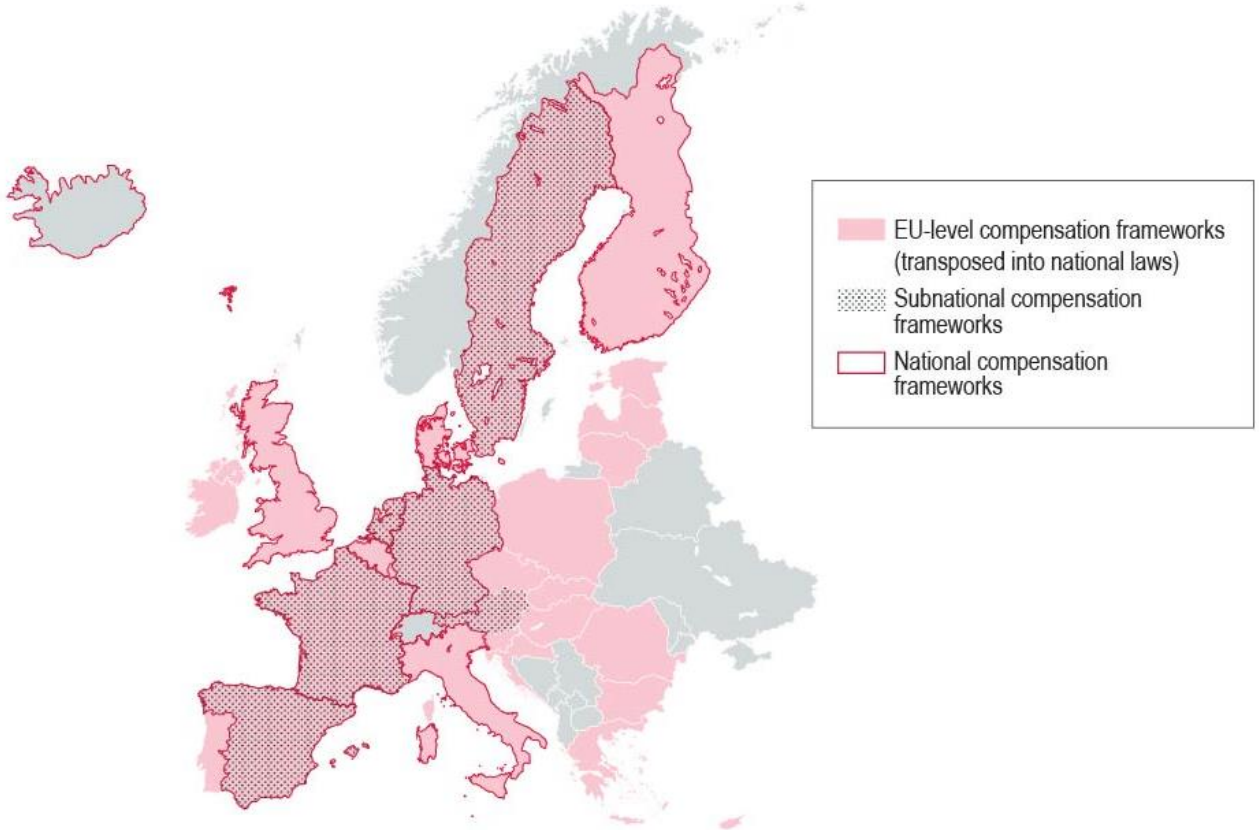
1. Is the programme related to the Habitats Directive Article 6 [3] and [4] (Council Directive 92/43/EEC), and/or the Birds Directive Article 4[4] (Directive 2009/147/EC)?
2. Is the programme related to the Environmental Impact Assessment (Directive 2011/92/EU) or Strategic Environmental Assessment Directives (Directive 2001/42/EC)?
3. Is the programme related to the Environmental Liability Directive (Directive 2004/35/EC)?

4. Does the programme preserve/establish/enhance protected/priority land for species or habitat?
5. Is there any monetary transaction involved in the programme to mitigate environmental impacts? If not, how does the scheme finance biodiversity compensatory mitigation?
6. Is the programme national, regional, or locally applied?
7. Is the programme voluntary or mandatory (i.e., regulated by legislation)?

A total of four European compensation programmes were selected as case studies. Data was collected through semi-structured phone interviews with key actors. A research framework (Chavarria 2017, Leonardi 2016) was used to guide the semi-structured interviews and collect data about each programme's objectives, activity, scientific basis, and implementation.

## 4. COMPLIANCE OFFSETS AND COMPENSATION PROGRAMME FRAMEWORKS IN EUROPE

Map 1: Programmes by Compensatory Mitigation Type in Europe, 2015




Three major EU-level regulatory frameworks include compensatory mitigation elements: the Birds and Habitats Directives, the Environmental Liability Directive, and Environmental Impact Assessment frameworks (Table 3). Each are transposed into national laws by all Member States.

In addition to EU-level compensation frameworks transposed into national laws, as of 2015, 12 countries had their own national or subnational programme frameworks requiring some form of compensatory mitigation for impacts to biodiversity and the environment (Table 4). The majority (52%) of programmes allow only one-off offsets (Figure 2). But nearly as many (48%) permit financial compensation, banking, or both. For instance, within seven programmes regulators have an established preference for one-off offsets delivered by the impacting party. But they will accept financial compensation as an alternative or a last resort.

Figure 2: Number of Compliance Programmes in Europe by Compensatory Mitigation Type


*Notes: Based on 53 programmes reporting compensatory mitigation type as of 2015.*

Offsets and compensation frameworks each have their own distinct triggers. The Birds and Habitats Directives for example focus on impacts to the EU network of protected areas known as **Natura 2000** sites. Other frameworks cover accidental environmental damages, impacts to domestically important species or habitats, or negative impacts to biodiversity values in general.

Table 4: Biodiversity Offsets and Compensation Programmes in Europe, 2015

| Supranational Compliance Offsets and Compensation Programmes (Transposed into National Laws) | | | | | |
|---|---|---|---|---|---|
| **Name** | **One-Off Offsets** | **Financial Compen-sation** | **Mitigation Banking** | **Compensatory Mitigation triggers** | **Equivalency Requirements** |
| **Birds and Habitats Directives compensation** | ✓ | | | Natura 2000 sites | Like-for-like |
| **Environmental Liability Directive compensation** | ✓ | ✓ | | Negative environmental impacts, particularly to species habitats protected under the Birds and Habitats Directives | Relaxed |
| **Environmental Impact Assessment compensation** | ✓ | ✓ | | Accidental environmental damages | Like-for-like or better |

Table 4 (continued)

**National Compliance Offsets and Compensation Programmes**

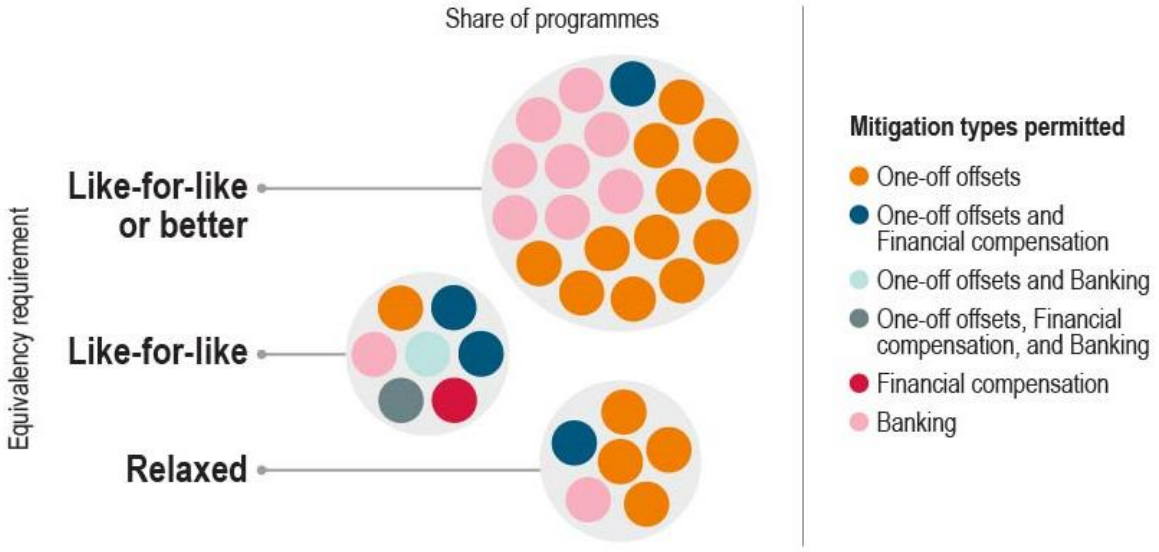
| Country | One-Off Offsets | Financial Compen-sation | Mitigation Banking | Compensatory Mitigation Triggers | Equivalency Requirements |
|---|---|---|---|---|---|
| **Belgium** | ✓ | ✓ | | Biodiversity in general | Like-for-like |
| **Denmark** | ✓ | | | Protected habitats and species, forests, environment | *Unclear* |
| **Finland** | ✓ | ✓ | | Natura 2000 | *Unclear* |
| **France** | ✓ | | ✓ | Environment; protected habitats and species, biodiversity in general | Like-for-like |
| **Germany** | ✓ | ✓ | ✓ | Protected habitats and species, environment | Relaxed, Like-for-like or better |
| **Iceland** | ✓ | | | Conservation areas, ecosystems, geological formations and landscape features | Unclear |
| **Italy** | ✓ | | | Forests | Like-for-like |
| **The Netherlands** | ✓ | ✓ | | National Nature Network | Like-for-like |
| **The Netherlands** | ✓ | ✓ | | Protected species | Like-for-like |
| **The Netherlands** | | | ✓ | Natura 2000, National Nature Network | Relaxed |
| **Spain** | | | ✓ | Natura 2000, natural resources | Like-for-like or better |
| **Sweden** | ✓ | | | Natura 2000, protected areas, watercourses, areas of "high environmental or cultural priority," impacts from road building and other large infrastructure projects | Like-for-like or better |
| **Sweden** | | ✓ | | Impacts on fisheries from hydropower or coastal development | *Unclear* |
| **Switzerland** | ✓ | ✓ | | Protected areas, Areas of Special Conservation Interest, sites of national or local importance, sites important for biodiversity | Like-for-like or better |
| **United Kingdom** | ✓ | | ✓ | Natura 2000, Sites of Special Scientific Interest, biodiversity in general | Like-for-like or better |

Table 4 (continued)

| Subnational Compliance Offsets and Compensation Programmes | | | | | |
|---|---|---|---|---|---|
| **Country** | **One-Off Offsets** | **Financial Compen-sation** | **Mitigation Banking** | **Compensatory Mitigation Triggers** | **Equivalency Requirements** |
| **Austria** | ✓ | ✓ | | Protected habitats and species, biodiversity in general | Unclear |
| **France** | | | ✓ | Environment, protected habitats and species, biodiversity | Like-for-like |
| **Germany** | | ✓ | ✓ | Protected habitats and species, ecosystem functions | Relaxed |
| **Germany** | ✓ | ✓ | | Changes in the shape or use of land, or the groundwater level which may significantly or permanently affect the performance of the natural environment or the landscape | Relaxed |
| **Italy** | | ✓ | | Development of agricultural lands | Relaxed |
| **The Netherlands** | | ✓ | | Natura 2000, National Nature Network | Unclear |
| **Spain** | ✓ | | | Protected areas, biodiversity, unprotected areas of significance | Varies |
| **Sweden** | | ✓ | | Natural areas in the city of Helsingborg | Relaxed |

Programmes also differ in terms of equivalency requirements, i.e., how similar offset sites must be to the original impacted habitat(s) in terms of in size, structure, function, or species or habitat composition (Figure 3). Comparing equivalency requirements between the three types of compensatory mitigation programmes, we find that regulatory frameworks accepting only one-off offsets were responsible for both the strictest equivalency requirements but also the largest share of programmes with relaxed requirements. Third-party offsets and compensation most often required that habitat restoration, enhancement, or creation focused on “like-for-like or better” (e.g., higher biodiversity-value) habitats.

Figure 3: Programme Equivalency Requirements in Europe by Compensatory Mitigation Type




*Notes: Based on 32 programmes reporting on compensatory mitigation type and equivalency requirements.*

## 5. MARKET OVERVIEW

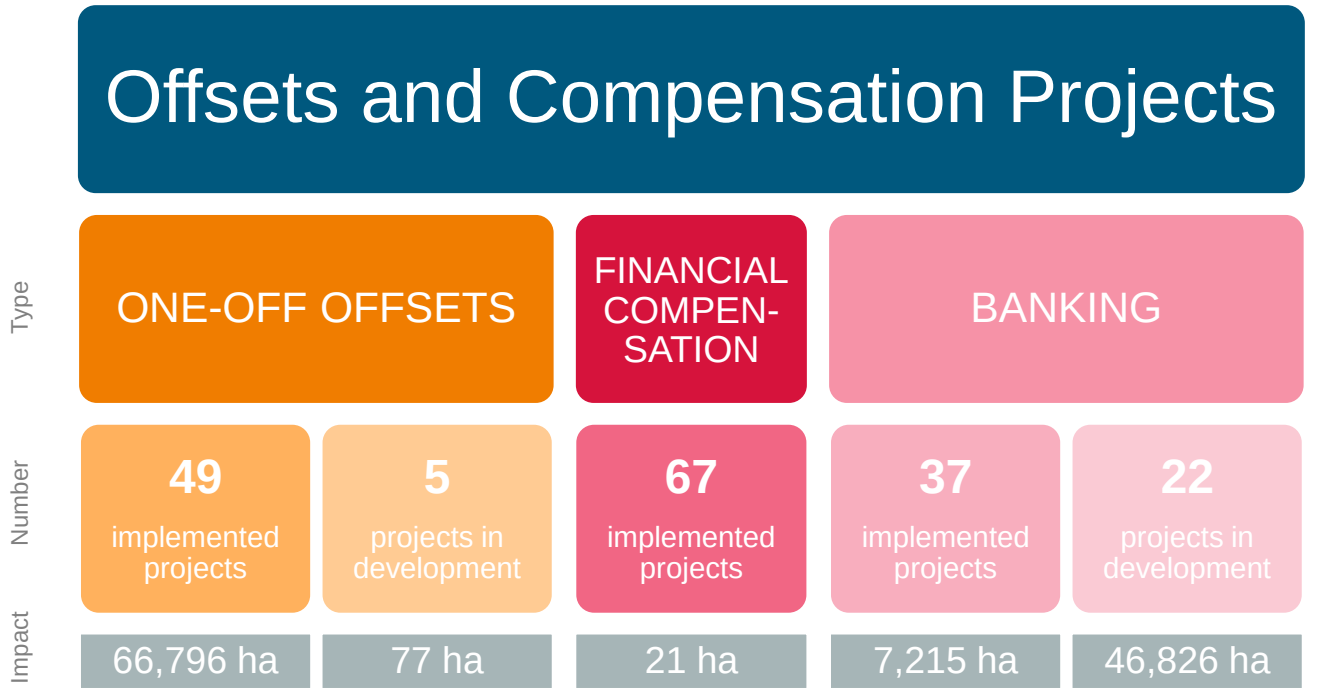
Table 5: Biodiversity Offsets and Compensation Activity in Europe: Number and Impact of Projects by Project Status, 2015

| | Compliance Projects | | Voluntary Projects | |
|---|---|---|---|---|
| | **Number** | **Area (ha)** | **Number** | **Area (ha)** |
| **Implemented** | 143 | 73,914 | 8 | 20 |
| **In Development** | 24 | 46,903 | 3 | - |
| **TOTAL** | 167 | 120,817 | 11 | 20 |

*Notes: Based on 178 projects reporting both regulatory driver and status information, representing a total of 120,837 ha of implemented or in development project area. For two projects, data on either regulatory driver or status was unavailable.*

This study identified 180 implemented or in-development projects that used biodiversity offsets and compensation mechanisms in pursuit of no net loss or net gain of biodiversity in Europe in 2015. Most (93%) were compliance projects, meaning that regulatory obligations were the primary driver for buyers in funding offsets or compensation (Table 5). Projects reported that biodiversity conservation activities were implemented on 73,914 hectares (ha) as of the end of 2015 with another 46,903 ha in the pipeline (Table 5). This figure underestimates the actual impact of compensatory mitigation in Europe, since slightly less than 60% of projects reported land area data.

Figure 4: Projects by Compensatory Mitigation Type, Number, and Impact in 2015

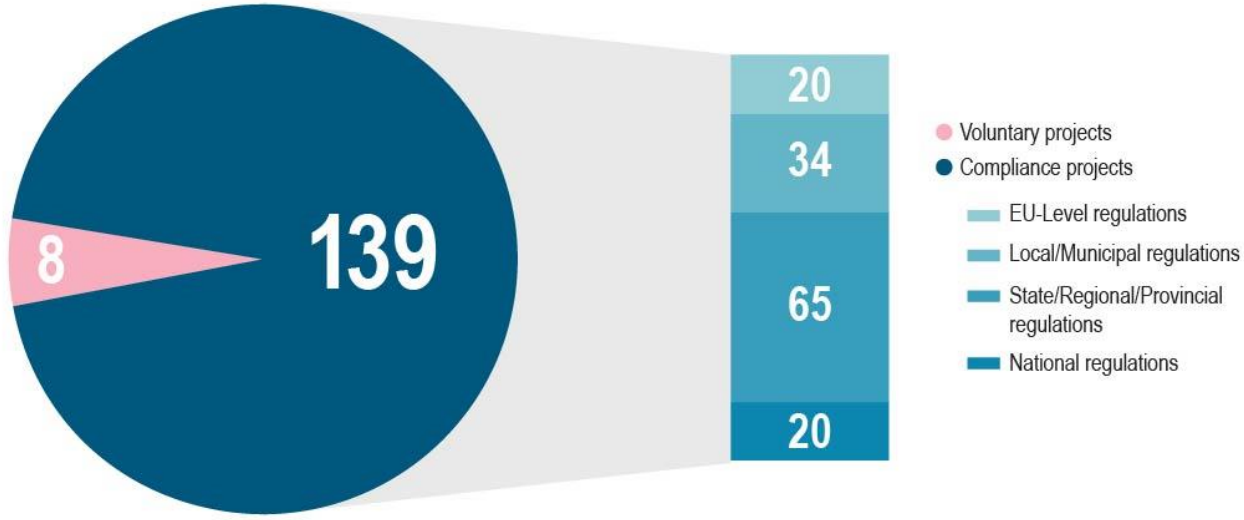



**Drivers**

Ninety-five percent of implemented projects tracked were compliance driven, shaped by EU, national, or subnational regulations or policy directives (Figure 5). At the EU level, all Member States are required to provide compensatory habitat for any protected habitat under the Birds and Habitats Directives that is damaged by development activities. Many national, regional, and local governments have also developed their own frameworks for compensatory mitigation. Local/municipal regulatory frameworks were particularly important drivers of biodiversity mitigation, especially in Germany. Additional country-specific information is available on page 21.

Meanwhile, voluntary offsets and compensation projects were identified in Austria, Finland, France, Germany, the Netherlands, Sweden, and the United Kingdom.

Figure 5: Number of Implemented Biodiversity Offsets and Compensation Projects by Driver Type and Scale, 2015

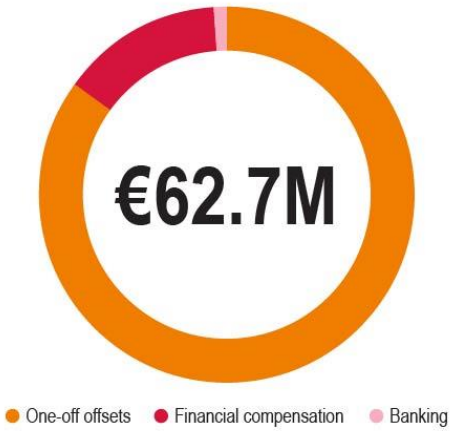



*Notes: Based on 147 projects providing data on specific regulatory driver and scale.*

**Value**

Transaction data for biodiversity offsets and compensation projects in Europe proved very difficult to collect, whether due to sensitivities around sharing financial data or difficulties on the part of projects in accurately reporting total spending and isolating costs linked to offsets or compensation from general project development costs. We documented €95.8M in transactions between 1996 and 2015, and €62.7M for the five-year period 2011-2015. That value is associated with 75 projects and 4,530 ha of project area, e.g., only 6% of total area reported under conservation. Thus these figures likely represent only a fraction of actual spending. One-off offsets accounted for 85% of reported transactions between 2011 and 2015 (Figure 6).

Figure 6: Transacted Value by Compensatory Mitigation Type, 2011-2015




*Notes: Based on 75 projects reporting transactions for 2011-2015.*

One-off offsets reported another €2.9M committed for projects still in development as of 2015. Mitigation banks said that credits in development will be worth between €2.3M and €6.8M, though actual transaction value will depend on the final negotiated prices for credits.

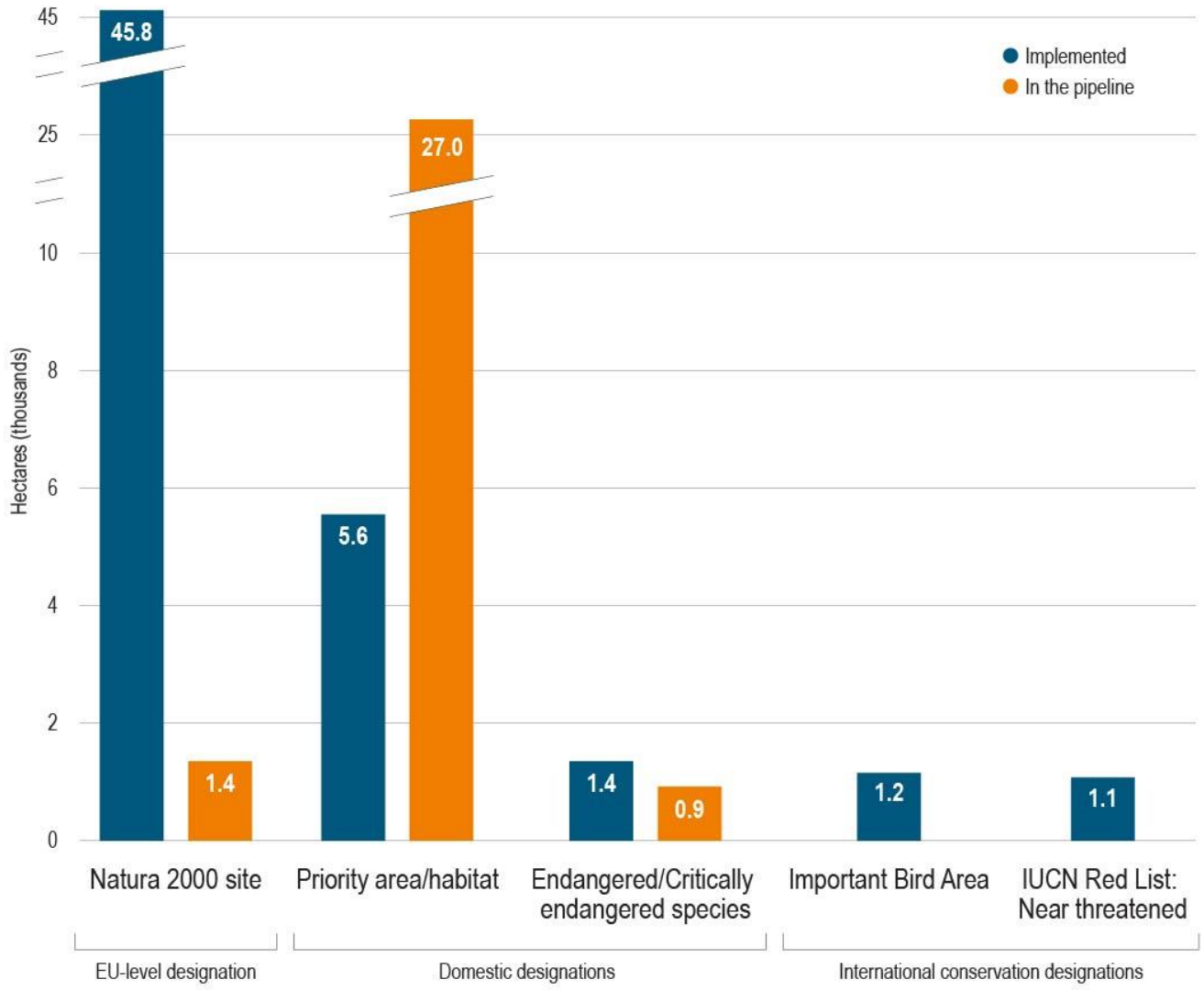
## 6. IMPACT

Most compensatory mitigation activity to date has been driven by one-off offsets, which has accounted for more than 90% of total land area conserved as of 2015 (Figure 4). But mitigation banks reported significant activity in the pipeline, with 21 new projects in development representing at least 46,826 ha slated for habitat restoration, protection, and/or creation in the coming years. However, it is more difficult to predict future activity for one-off offsets than it is for banks, since these projects depend on new development triggering regulatory obligations. Thus compensatory mitigation planning in advance of impacts may not be required.[2]

One-off projects have also historically tended to be much larger in scale than other forms of compensatory mitigation. Across Europe, the average size of an operational one-off offset project in 2015 was 911 ha, compared to mitigation banking's average project size of 204 ha and financial compensation's average size of 11 ha.

[2] Financial compensation comprised less than 1% of reported area conserved. Impact, as measured in land area restored or protected, is difficult to track for this mitigation type, since compensatory activities may take place long after funds are transferred. Moreover, compensations funds in some cases can be spent on other activities like research, monitoring, or education/outreach instead of land conservation.

Figure 7: Land Area Conserved by Most Frequently Reported Conservation Designations, 2015




*Notes: Based on 48 projects reporting conservation designations for 98,128 ha of land.*

Compensatory mitigation efforts focused on a reported 395 different habitat types and 169 individual animal and plant species. Collectively, projects restored, re-established, or protected at least 45,811 ha of designated Natura 2000 sites (Figure 7). Offsets and compensation were also used to achieve domestic biodiversity conservation goals, with more than 6,900 ha of habitat reported conserved as of 2015 and plans for more than 27,000 ha underway. Projects reported relatively low activity for lands listed under international conservation designations like the International Union for Conservation of Nature (IUCN) Red List or the Ramsar Convention.[3] Once again, these

[3] The IUCN Red List (www.iucnredlist.org) is a global catalogue of plants, fungi, and animals including taxonomic information, conservation status, and distribution. It is managed by the International Union for Conservation of Nature. Red List status classifications range include Extinct, Extinct in the Wild, Critically Endangered, Endangered, Vulnerable, Near Threatened, Least Concern, and Data-Deficient. The Ramsar Convention (www.ramsar.org) is an international treaty first ratified in 1971 coordinating national action and international cooperation for wetlands conservation. Contracting Parties implementing the convention in their territories commit to designating wetlands for inclusion on the Ramsar List of Wetlands of International Importance. As of 2017, there are more than 2,200 listed Ramsar Sites around the world.

figures are likely conservative, since data on conservation designation status was not provided for 19% of land area reported.

## 7. LOCATION

Italy is home to the largest number of reported implemented projects, followed by Germany (Table 6). Sweden, France, the United Kingdom, and Belgium also had relatively large numbers of projects reported as implemented or underway.

On the other hand, the Netherlands and Norway led in terms of area as of 2015, together hosting 47,883 ha of offsets and compensation projects as of 2015. In both countries large one-offset projects linked to major infrastructure development have occurred (in the Netherlands' case, a port; in Norway, hydropower development and an armed forces training field).

Table 6: Number of Projects per Country by Status and Total Area Reported, 2015

| | Implemented Projects | Projects in Development | Total Number of Projects | Total Area Implemented (ha) |
|---|---|---|---|---|
| **Austria** | 2 | | 2 | - |
| **Belgium** | 7 | | 7 | 15 |
| **Finland** | 1 | | 1 | |
| **France** | 6 | 3 | 9 | 3,863 |
| **Germany** | 47 | 18 | 65 | 5,707 |
| **Hungary** | 1 | | 1 | - |
| **Iceland** | 1 | | 1 | - |
| **Italy** | 63 | | 63 | 77 |
| **The Netherlands** | 1 | 1 | 2 | - |
| **Norway** | 2 | 1 | 3 | - |
| **Spain** | 2 | | 2 | - |
| **Sweden** | 9 | 2 | 11 | 3,647 |
| **Switzerland** | 5 | | 5 | 21 |
| **United Kingdom** | 6 | 2 | 8 | 191 |
| **TOTAL** | **153** | **27** | **180** | **74,019** |

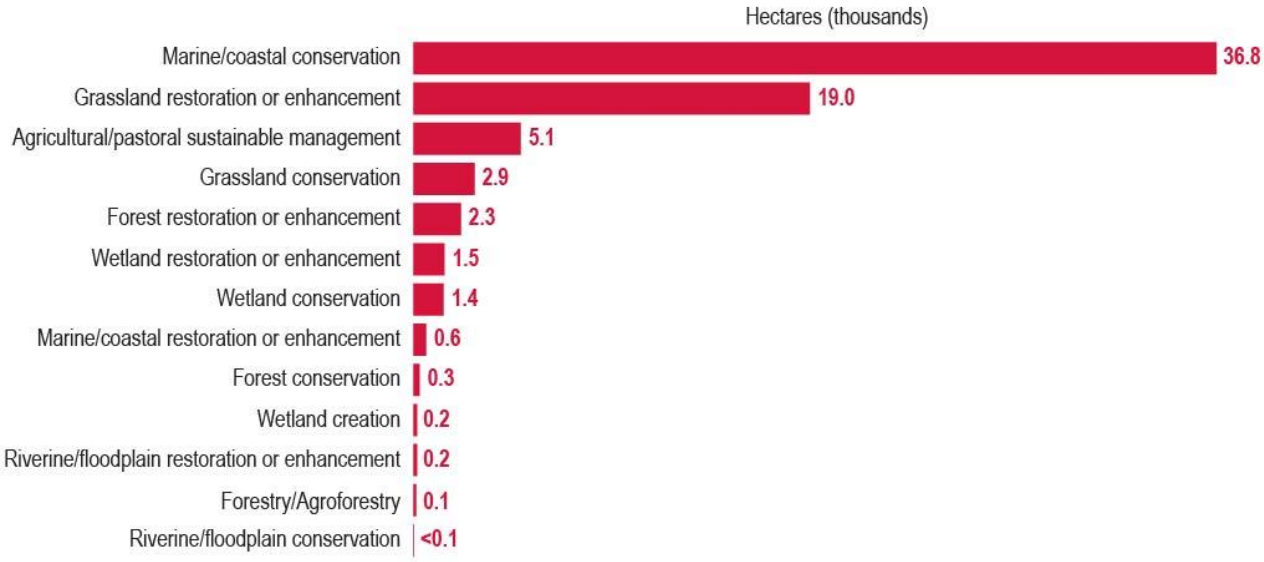
*Notes: Ecosystem Marketplace only publishes data when at least three respondents have provided data points, in order to protect the confidentiality of our survey respondents. Thus total area data is not publicly available for some countries, although this data is reflected in the Total Area Implemented figure for all of Europe.*

## 8. PROJECT DESIGN

European project developers reported that more than half of total project area (53%) focused on conservation of marine and coastal areas, mainly due to major port projects requiring marine/coastal conservation offsets (Figure 8). Grassland restoration or enhancement (26%) was also a major intervention undertaken by projects. Intervention choice was largely driven by regulatory obligations driving activity towards specific habitats or species of concern.

Projects serving voluntary buyers reported activities on 3,221 ha as of 2015; here, buyers seemed to favour charismatic species or habitats such as bees, wildflower meadows, and old-growth forests.

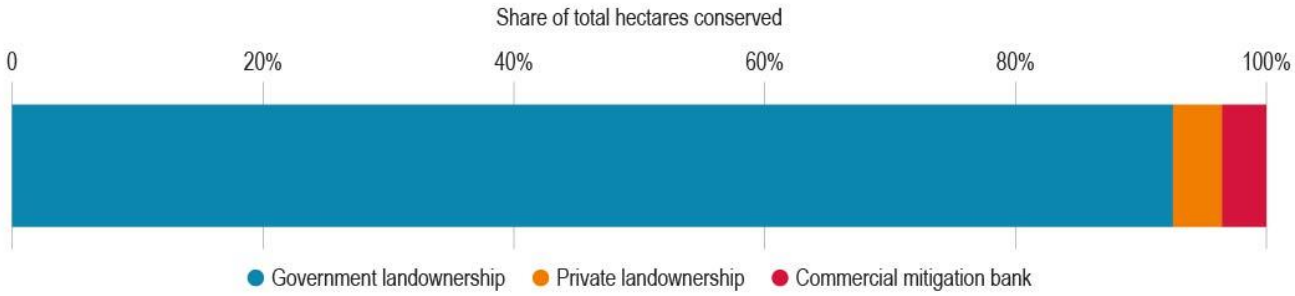
Figure 8: Land Area of Implemented Offsets and Compensation Projects by Management Intervention




*Notes: Based on 72,319 ha for which intervention was reported.*

More than nine in ten hectares (92.6%) reported by projects as restored, enhanced, or conserved were on government-owned and managed lands (Figure 9). Privately owned compensatory mitigation sites and commercial mitigation banks made up roughly equal shares of the remainder.

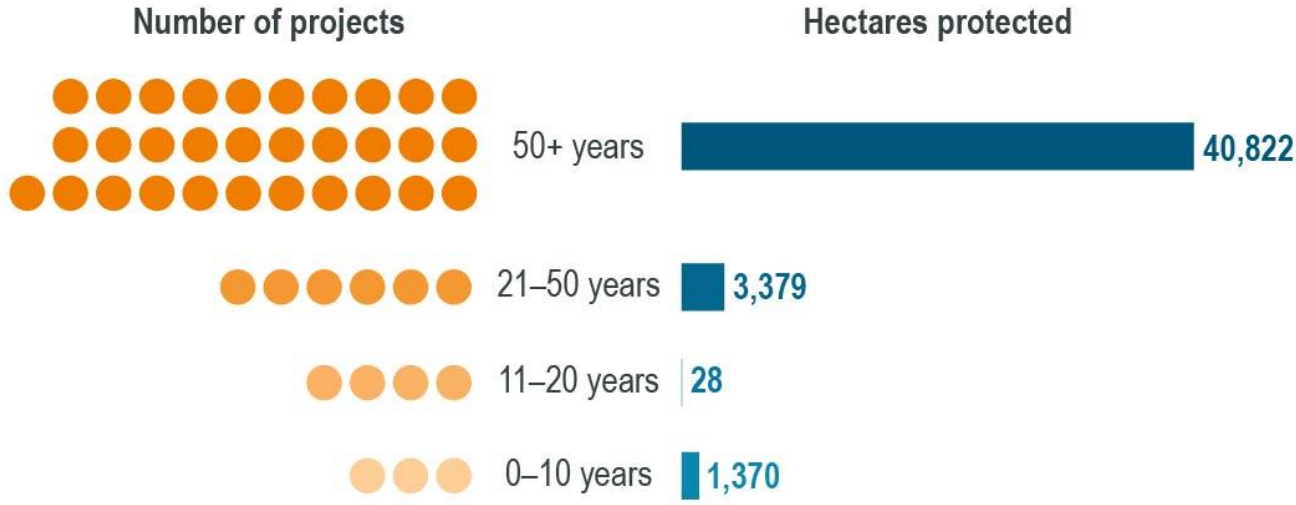
Figure 9: Share of Offsets and Compensation Projects' Land Area Conserved by Land Ownership Type, 2015




*Notes: Based on 53,016 ha for which land ownership information was reported.*

At least 40,822 ha restored, enhanced, or conserved as part of compensatory mitigation efforts will be permanently protected (Figure 10). More than 70% of projects reporting on the length of protection as of 2015 said they would be protecting lands in perpetuity; slightly less than 14% of projects said protections were in place for 21-50 years. Sixteen percent of projects, representing just 3% of total land area tracked, said protection would be for 20 years or fewer as of 2015.

Figure 10: Project Protection Duration by Number of Projects and Hectares Protected, 2015




*Notes: Based on 44 projects managing 45,598 ha that reported duration of land protection as of 2015*

## 9. BUYERS

A limited number of projects (36) provided detailed information on buyers.

European offsets and compensation buyers most often represented public and private parties involved in major infrastructure projects–highway construction, ports and airports expansion, and energy distribution systems, for

instance (Table 7). Energy generation/distribution and transportation/shipping projects in particular tended to be very large, averaging 15,014 ha and 7,789 ha respectively.

The greatest number of buyers reported were located in Germany, followed by France, the United Kingdom, and Switzerland. All buyers in 2015 reported a compliance driver, meaning that projects were selected and funded based on regulatory obligation. Thus all projects tracked were located in near proximity to buyers' operations; we identified no cases in which payments crossed national boundaries.

Table 7: Buyers by Location, and Buyer Sectors by Value, Number, and Average Project Size Funded

| Top Countries by Share of Buyers |
|---|
| **Germany:** 37% |
| **France:** 20% |
| **United Kingdom:** 20% |
| **Switzerland:** 14% |
| **Top Sectors by Value (2011-2015)** |
| **National government:** €32.9M |
| **Energy generation/distribution:** €23.5M |
| **Transportation (private sector):** €7.7M |
| **Energy extraction:** €2.3M |
| **Local/Municipal government:** €0.9M |
| **Top Sectors by Share of Buyers** |
| **Transportation/Shipping (public sector):** 24% |
| **Local/Municipal government:** 15% |
| **Energy generation/distribution:** 12% |
| **Industrial Processes (non-energy):** 9% |
| **Energy extraction:** 9% |
| **Average Project Size, by Buyer Sector** |
| **Energy generation:** 15,014 ha |
| **Transportation/Shipping (public sector):** 7,789 ha |
| **Transportation/Shipping (private sector):** 537 ha |
| **Energy extraction:** 175 ha |
| **Local/Municipal government:** 37 ha |

*Notes: Based on 36 buyers.*

# 10. COUNTRY PROFILES

## 10.1 Germany

### Compliance frameworks

Germany's primary driver of mitigation, the Impact Mitigation Regulation (*Eingriffsregelung* in German), was established in the German Federal Nature Conservation Act in 1976. Its purview is quite broad; most development projects in Germany with impacts to nature and landscapes in general (rather than, for example, impacts only to protected areas or species) require application of the mitigation hierarchy under the Impact Mitigation Regulation (Darbi et. al 2009).[4]

The concept of mitigation banking was first introduced in Germany in 1993, limited to remediation measures triggered by Federal Building and Spatial Planning regulations. Reforms of the Nature Conservation Act in 2002 expanded the use of mitigation banks, known in Germany as "compensation pools" (*Flächenpools*), for any impacts under the Impact Mitigation Regulation (Naumann et al. 2008).

Both public and private entities can establish and manage compensation pools. An estimated 80% of compensation pools in Germany are managed by municipal governments (Naumann et al. 2008). Credits and debits to the pools are calculated through a system of "eco-points" banked to "eco-accounts" (*Öko-Konten*). Calculation methodologies vary by compensation pool, but all are based on habitat maps and habitat lists set at the state level.

Today, hundreds of pool sites have been established across the country (Darbi et al. 2009). Recent data from the state of Bavaria shows over a hundred projects comprising nearly 20,000 ha (BSOE 2015b), for example.[5] Compensation pools have established their own national association, the Bundesverband, which lobbies on policy matters and promotes awareness of the mechanism.

## 10.2 United Kingdom

### Compliance frameworks

In addition to the EU-level Habitat and Birds Directives, the United Kingdom has several high-level policies in place that support environmental impact mitigation, including its Planning Policy Statement, the 1992 Convention on Biodiversity, the 2005 Sustainable Development Strategy, the published Natural Environment White Paper (Defra 2011c) and the National Planning Policy Framework (DCLG 2012). Within England, the Natural Environment White Paper sets out how offsets strategically applied can deliver improved ecological values in England's network of habitats, while the National Planning Policy Framework mandates that developers minimise their impacts on biodiversity and provide net gains whenever possible (DCLG 2012).

To date there is no compliance framework enabling mitigation banking in the United Kingdom at the national level. However, in 2011 the Department of Environment, Food and Rural Affairs (Defra) published a pilot offset metric for England. The metric was tested by six pilot banks in 2012-2014 as part of a new voluntary mitigation banking initiative partially funded by Defra (Defra 2011a, Defra 2011b). Defra's stated aim was that biodiversity offsetting could deliver more effective and standardised mitigation, and a more straightforward permitting process for agencies and developers.

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[4] Exceptions sometimes exist in cities where planning is designed to encourage greater urban density rather than development of greenfields, and thus compensatory mitigation requirements are waived.

[5] Bavaria conserved an average of 2600 ha of land in the form of land-pool annually between 2008 and 2009 (Morandeau and Vilaysack 2012, OECD 2013).

Following the end of the two-year pilot phase in 2014, next steps for mitigation banking in England remain unclear. According to an interim report (CEPL and IEEP 2013) and a final report (Environment Bank 2016), offset projects struggled with a lack of developer interest in pursuing offsets, due to the voluntary nature of the system and difficulty predicting costs associated with implementing the Defra metric. The offsetting pilot was also the subject of significant public debate (Connor 2016), with a public consultation suggesting ambivalence over the proper role of biodiversity offsets and the design of the pilot banking scheme (Defra 2016). Only 53% of respondents felt that the government should support a biodiversity offsetting system at all in England. Respondents opposed to offsets cited concerns that offsetting would lead to net loss of biodiversity rather than net gain, that restoration projects would be unsuccessful, and that market-based approaches were inappropriate in principle. Defra in its final report did not identify any clear next steps for biodiversity offsets and compensation mechanisms, and to date the United Kingdom's Parliament has not supported new policy or regulation that would authorise third-party mitigation for biodiversity impacts.

**Box 2: Case Study: Environment Bank in the United Kingdom**

Environment Bank is an English private company that brokers biodiversity compensatory mitigation agreements for developers and landowners through mitigation banking projects. All of its clients pursue biodiversity offsets voluntarily. As of the spring of 2016, Environment Bank has worked with more than two dozen local planning authorities in 15 counties on more than 60 planning applications. Credit sales associated with Environment Bank's offset projects total €1.9M to date.

Many transactions have focused on mitigating impacts to grasslands and arable lands of low biodiversity value, among the most frequently impacted environments in England, via offsets that "trade up" by restoring or enhancing areas of higher ecological value.

Environment Bank reports that over 10,000 landowners have shown interest in developing mitigation banks on their lands. In the absence of national-level regulatory drivers in the United Kingdom that would create demand for mitigation credits, the company is working with local authorities to stimulate demand for mitigation credits. For instance the city of York, which has established a no net loss policy, is partnering with Environment Bank to incorporate mitigation banking into its no net loss strategy.

### 10.3 France

#### Compliance frameworks

The mitigation hierarchy has been part of French environmental policy since the country adopted its Nature Protection Law in 1976. Reforms to the law in 2007, during which the EU Birds and Habitats Directives were transposed into national law, reiterated the role of the mitigation hierarchy in conserving biodiversity. Emphasis was placed on avoidance and minimisation; under French law compensatory mitigation explicitly should be used only as a last resort when necessary to achieve no net loss of biodiversity.

In 2012, the French Ministry of Ecology, Sustainable Development & Energy published guidelines for use of biodiversity offsets following modifications to the Environmental Impact Assessment and Strategic Environmental Assessment decrees (Decrees 2012-616 and 2012-995). The revised decrees reiterated the importance of full application of the mitigation hierarchy sequence and recognised a role for offsetting (including the use of banking) in achieving no net loss.

In August 2016, the new Law 2016-1087 for the Recovery of Biodiversity, Nature, and Landscapes codified much of the 2012 guidance, including like-for-like equivalency requirements and principles governing proximity requirements for offsets. The new law also provided an explicit definition of the scope of the mitigation hierarchy. It

further required that application of the mitigation hierarchy must be oriented around specific outcomes for no net loss or net gain, rather than a "means-based" system assessing performance based on costs or implementing restoration actions. Another major change contained in the 2016 law was the recognition of mitigation banking credits as an accepted form of offsets, in addition to one-off offsets or "turnkey" compensatory mitigation wherein a developer contracts with a third party to deliver offsets. A forthcoming decree will define legal accreditation requirements for banks. As of 2017, only one mitigation bank is operational in France (Box 3), and supporters of banking hope that the new law will help foster growth in banking.

### Box 3: Case Study: CDC Biodiversité's "Biodiversity Offsets Supply" Pilot Project in France

Since 2008 the French Ministry of Ecology, Sustainable Development & Energy ("the Ministry") has operated an experimental mitigation banking programme called "Biodiversity Offset Supply." The goal of the programme is to provide offset credits for habitat, species and ecosystem functions, promote consideration of biodiversity mitigation and compensation earlier in the development planning phase, and provide empirical experience of the effectiveness of biodiversity offsets in attaining no net loss.

As of 2017, the scheme has created one operational bank, the Operation Cossure (also known as the "Cossure natural assets reserve"). The project is implemented by the CDC Biodiversité. Located in southeastern France in the plains of Crau, the bank consists of 357 ha of former commercial fruit orchards. The site is part of an important corridor for native bird species in the Réserve Naturelle des Coussouls de Crau. Bank developers are working to restore low grassland vegetation habitat for birds and other protected species. Protection of restored habitats is guaranteed for 30 years. After its first five years of operation, the bank has sold 46% of its credits but has not yet met profitability goals. Low demand is attributed to a lack of specific guidelines driving developers to purchase credits and a lack of diversity in the types of credits offered by the Cossure project. Programme administrators note that weak demand translates into a lack of incentives for landowners to develop banks. In 2011, the Ministry initiated a request for proposals to develop more banks offering a more diverse range of credits. Four additional pilots in the Alps, Brittany, and the Paris metropolitan region are under development but not yet operational.

### 10.4 Italy

#### Compliance frameworks

The Italian Environmental Norms of the Legislative Decree no. 152/2006 invites developers to compensate for adverse environmental impacts, but does not require mandatory offsetting. Often development projects do not propose mitigation actions equivalent to negative impacts (art 27-5 and art 40-1 of the DPCM 152/2006). Despite a stated preference in Environmental Impact Assessment law and in the Birds and Habitats Directives for compensation, it is still a common practice in Italy to deliberately underestimate impacts to Natura 2000 sites, and not to provide like-for-like compensation (Bassi et al. 2012), especially when impacts do not occur on Natura 2000 sites or in forest areas.

In May 2015, the Italian Government amended the Environmental Stability Law of 2014 to create a basis to develop and enforce new policies protecting ecosystems and their provision of services, and move toward a no net loss initiative. The amendment to the Environmental Stability Law of 2014 authorises the Government to implement payments for ecosystem services (Camera dei Diputati 2016). The amendment opens a new door for environmental compensation mechanisms. The reform came in response to the EU Green Infrastructure Strategy promoting cost-effective green infrastructure alternatives, such as ecological corridors, riparian and coastal green belts, multi-

functional farms, and wildlife overpasses, to achieve the EU 2020 Biodiversity Strategy. As of the time of this report's writing, no examples exist yet of regulatory initiatives at the national or regional level making use of the 2015 amendment.

### Box 4: Case Study: Lombardy's Green Fund in Italy

The Northwest Lombardy Region of Italy created a "Green Fund" in 2009 to collect financial compensation for the loss of agricultural lands due to development projects. All municipalities in Lombardy levy an environmental fee that ranges from 1.5%-5% of the total costs of the development project. Funds are used for permanent environmental improvements within the boundaries of the same municipality depositing the money, and must be spent within three years. Environmental improvements typically focus on management of existing wildlife corridors, urban forests, hedgerows, and grasslands. However, projects can also involve larger-scale ecosystem creation, restoration or management.

The Green Fund is managed by the Lombardy Region Department of Finance, which disburses funds to municipalities when they are ready to execute projects. Each Providence or Mountain Community advises the municipality on areas and priorities for allocating funds, based on the national Italian Forest Plan, regional Ecological Network Plans, and other regional species and ecosystem priorities. The Green Fund also finances monitoring of ecological improvements for two subsequent years.

To date, about 18% of total funds collected since 2009 (nearly €1M) has been used for 63 projects consisting of 16 ha of forest, 5 ha of hedgerows and 38 ha of silvicultural improvements. In an effort to more quickly disburse the remaining 82% of funds, Lombardy region is planning to open a call in 2017 for Ecological Projects to be funded by the Green Fund but implemented by third parties other than municipalities.

## 10.5 Spain

### Compliance frameworks

Anticipating new regulations for mitigation banking at the EU-level for environmental impacts compensation, Spain in 2013 amended its Environmental Evaluation Law of 1988 (Spanish Law 21/2013) to set the stage for development and implementation of mitigation banks. The amended Environmental Evaluation Law includes a disposition (Disposition 8 [4]) that establishes the acquisition of "conservation credits" from mitigation banks as a legal offsetting mechanism recognised by the Agriculture, Food and Environmental Ministry (BOE 2013). However, forthcoming guidance for landowners interested in developing mitigation banks has yet to be published by the Environmental Ministry.

## Box 5: Case-study: ECO@CSA in Spain

ECO@CSA is a private company founded in Spain in 2012 that partners with local landowners to develop mitigation banks for biodiversity and other ecosystem services.

Despite recent government initiatives to promote banking as an offsetting alternative in the 2013 Environmental Evaluation Law, a lack of official guidelines and the current Spanish political environment have hindered growth in mitigation banking. In response, ECO@CSA has focused on tapping into corporate social responsibility motivations among developers, for whom banking offers a means to voluntarily compensate for residual environmental impacts.

In July 2016, the Extremadura Region approached ECO@CSA for their input in planning a Regional Conservation Bank. Extremadura is home to one-third of Spain's total protected area and has a history of strong environmental regulation. The collaboration between Extremadura and ECO@CSA will pilot the first mitigation bank in Spain and offer empirical experience for the National Environmental Ministry to consider in its forthcoming rules on mitigation banking.

## 12. OUTLOOK

### European Commission's No Net Loss Initiative Likely to Need Offsets to Achieve Its Goals

The EU Biodiversity Strategy called on the European Commission to develop a No Net Loss initiative for Europe's ecosystems and ecosystem services (European Commission n.d.), a request that was repeated that year by the Environment Council of Ministers (Council of the European Union 2011) and in 2012 by the European Parliament (European Parliament 2012). In 2014, the Commission opened a public consultation to gather views on scope, instruments, and application of a No Net Loss policy (European Commission n.d.c.). A majority of respondents were in favour of offsetting, but many expressed concerns about whether offsets in practice could be correctly implemented to achieve no net loss. Nevertheless, an impact assessment study of No Net Loss policy options published in 2016 suggested that in order to achieve No Net Loss in Europe in the long term, some form of mandatory offsetting measures would be necessary (IEEP 2016).

### Lack of Transparency a Barrier to No Net Loss?

At the same time, existing No Net Loss policies and regulation, including frameworks for offsets and compensation, are too often characterized by a lack of transparency in Europe. One recent study (Bull et. al., forthcoming) reviewed data available in the public domain on offsets implementation in France, Germany, the Netherlands, and Sweden. Its authors found that lack of transparency precluded a thorough assessment of how offset projects or broader No Net Loss policies were being implemented. This report's authors encountered similar difficulties in collecting data for this report: whether due to a lack of capacity or political will, regulators and other public agencies in Europe responsible for overseeing offsetting and compensation have made very little information available to the general public about how these mechanisms actually are working on the ground.

### Natural Capital Financing Facility Aims to Blaze a Path for Conservation Finance in Europe

In 2014, the European Commission kicked off a three-year pilot of its Natural Capital Financing Facility (NCFF) funded by the European Investment Bank. In its first phase, NCFF has a budget of up to $141M (€125M) for loans and investments that will support projects taking ecosystem-based approaches to natural resources and climate adaptation challenges. It aims to focus on "bankable" initiatives that can either generate revenue or deliver cost savings, an approach that may prick up the ears of private capital seeking investment-grade conservation projects.

In 2017, the NCFF inked its first loan agreement with Rewilding Europe Capital, an enterprise financing facility based in the Netherlands. Rewilding Europe Capital says it will use NCFF funds to invest in initiatives making a "business case" for conservation and ecological restoration at 20-30 Natura 2000 sites across Europe (European Commission 2017).

### Habitat Banking Seeks to Grow Market Share

Habitat banking was responsible for the largest share of new projects (22) and land area (46,826 ha) in the pipeline in 2015, compared to other mitigation types. Yet pilot efforts in France, Spain, the Netherlands, and the UK have met with mixed success, with bank developers citing a lack of regulatory drivers and clear guidance behind weak demand (Box 2, Box 3, Box 5). In France and Spain, forthcoming regulations and guidance seek to streamline permitting processes and ensure that offsetting requirements are equivalent for banks and one-off offsets. Meanwhile in Germany, where banking is well-established but an estimated 80% of banks are publicly managed, there are new signals that private sector actors are interested in developing more banks (Bavarian State Office for the Environment, 2015a).

### Forthcoming French Regulations to Support Banking

New legislation in France will seek to address persistent inequalities in regulatory standards for different mitigation types. At present, habitat banks in France face stricter requirements in terms of demonstrating additionality and providing for long-term management of offset sites; bank developers say that these requirements have increased

costs and hurt business. A forthcoming decree on the bank accreditation process is expected to address these issues.

**Will the United Kingdom "Brexit" the Habitats Directive, Too?**

As the Brexit proceeds in the coming years, some environmental protections may be discarded along with EU membership. United Kingdom government sources in 2017 suggested off-the-record that the Habitats Directive would be repealed as part of a broader effort under Prime Minister Theresa May's government to trim regulation (Financial Times 2017). In that event, a major driver of offsets in the United Kingdom would cease to exist.

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