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● Little book
of biodiversity
net gain



By Royal Charter



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Introduction

Biodiversity has never had greater prominence globally, for example the COP15 UN Biodiversity Summit in December 2022 launched a new global framework for biodiversity.

Here in the UK, policies on biodiversity net gain are developing fast. In England, BNG will become a legal requirement for most developments, including those seeking planning permission. Wales plans to achieve 'Net Benefits for Biodiversity' and Scotland plans for 'Net Positive Effect's. In Northern Ireland, there is an increasing expectation for development proposals and public bodies to consider biodiversity conservation.

Biodiversity is not just a policy requirement. Industry and society depend critically on biodiversity. Biodiversity provides resources to build critical infrastructure, improves asset resilience to the effects of climate change, creates attractive environments for people to live in, and improves our health and wellbeing.

What does this mean?

Organizations involved in development across the UK must ensure that their projects are able to achieve biodiversity net gain. Many organizations across the UK want to demonstrate that their new projects will positively benefit biodiversity. **BS 8683 Process for designing and implementing biodiversity net gain. Specification** provides a system to do so that fully integrates with other environmental management systems such as **ISO 14001 Environmental management systems — Requirements with guidance for use** and complies with national and devolved administration legislation. We cannot meet our ambitions for climate change, such as net zero, without looking after and restoring ecosystems, and so BS 8683 can play an important part in meeting the **ISO Net zero guidelines**.

This little book sets out the headlines on what biodiversity net gain is and how BS 8683 can assist your organization to deliver for biodiversity net gain and help reverse historic declines. It is intended to help anyone involved in infrastructure development no matter where you are in the UK and summarises the key actions to achieve biodiversity net gain when developing a project.

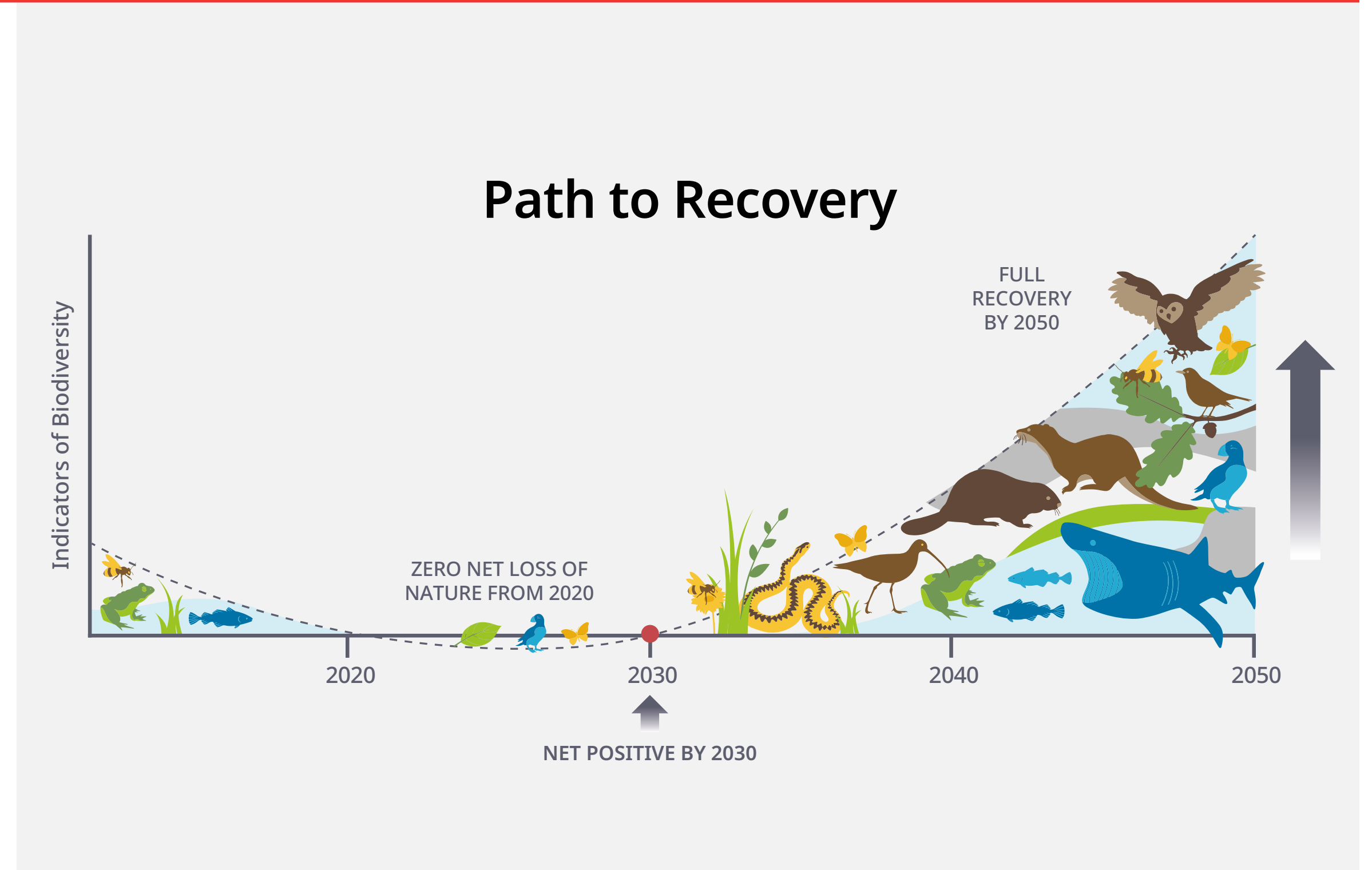


Image source: A Nature Positive UK by 2030. From the RSPB, adapted from the Global Goal for Nature. For more information visit: <https://www.naturepositive.org/>.

● What is biodiversity and why is it important?





Biodiversity is the diversity of life in all its dimensions, from species of plants to animals, their genetic diversity and the communities and ecosystems they form.

Biodiversity has its own intrinsic value whilst also providing innumerable services and benefits to people. For example, biodiversity provides clean water and air, healthy soils, medicines, protection from disease, pollination of food crops, and supplies natural resources needed to build and maintain infrastructure. It also underpins the resilience of land and property to extreme weather events, secures water supplies during prolonged heat waves, and sequesters carbon to meet net zero targets and tackle climate change. So, not only can the services provided by ecosystems and biodiversity complement - and even substitute - the functionality of engineered assets, they also generate multiple other benefits while doing so.

However, the benefits provided by biodiversity are not always obvious and can be difficult to quantify. Biodiversity is declining at an alarming rate because we are not valuing it properly. This is having devastating consequences for sustainable development, the health of the economy, and society.

Failure to prioritise the benefits of biodiversity in the design, planning and development of infrastructure and building projects is contributing to the current biodiversity crisis. Our ways of working and managing land are resulting in a critical and rapid loss of biodiversity which is exacerbating climate change and de-railing traditional economic strategies to boost growth. But it doesn't have to be this way. There are many opportunities to restore biodiversity, and businesses, planners, and regulators can play a leading role.

Development projects can become a force for good, where infrastructure development is a positive driver for the healthy and thriving natural environment on which it depends. Biodiversity net gain policies encourage all developers, including housing, transport, and energy projects to realise their potential to restore and enhance biodiversity. This can be successfully achieved through the process set out in BS 8683 and outlined in this little book.

● What is biodiversity net gain?





Biodiversity net gain (BNG) is the term used to mean that biodiversity is measurably better off as a result of a development project compared to the pre-development state, both in terms of species and habitats.

What does BNG mean in practice?

- Firstly, BNG builds on existing policies and legislation to protect nature. It does not replace existing legislation.
- Secondly, BNG is best achieved by avoiding impacts on biodiversity as much as possible. This is because biodiversity can be difficult to restore or create, and because land and space is limited. Early planning for BNG is essential in order to avoid and minimise losses from the outset, reducing unnecessary risks and costs associated with achieving BNG. Space is also a vital consideration throughout the development process: space within development sites to retain and enhance habitats, and space elsewhere that has the potential to restore or create functional and viable habitats.
- Thirdly BNG requires a long-term commitment to maintenance and monitoring, especially because habitats take time to establish and develop to the point where they can support wildlife populations.

The UK's Good Practice Principles for BNG

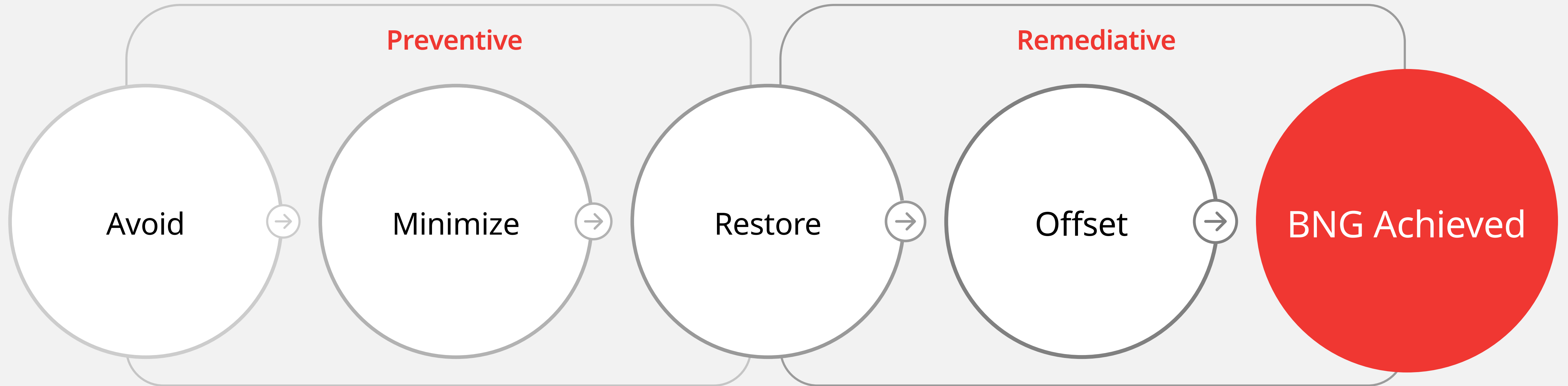
In 2016, leading professional environmental institutes published Good Practice Principles to support developments across the UK achieve BNG in accordance with good practice. These principles set a benchmark of 'what good looks like' and are framed around the mitigation hierarchy.

01. Apply the mitigation hierarchy
02. Avoid losing biodiversity that cannot be offset by gains elsewhere
03. Be inclusive and equitable
04. Address risks
05. Make a measurable net gain contribution
06. Achieve the best outcomes for biodiversity
07. Be additional
08. Create a net gain legacy
09. Optimise sustainability
10. Be transparent



Mitigation hierarchy

The mitigation hierarchy prioritises efforts to avoid then minimise biodiversity losses before considering restoration of degraded biodiversity and, as a last resort, creating it in new locations (offsetting). The mitigation hierarchy has long been part of environmental assessments of developments; the difference is that it now aims for biodiversity net gain as a result.



Making a contribution

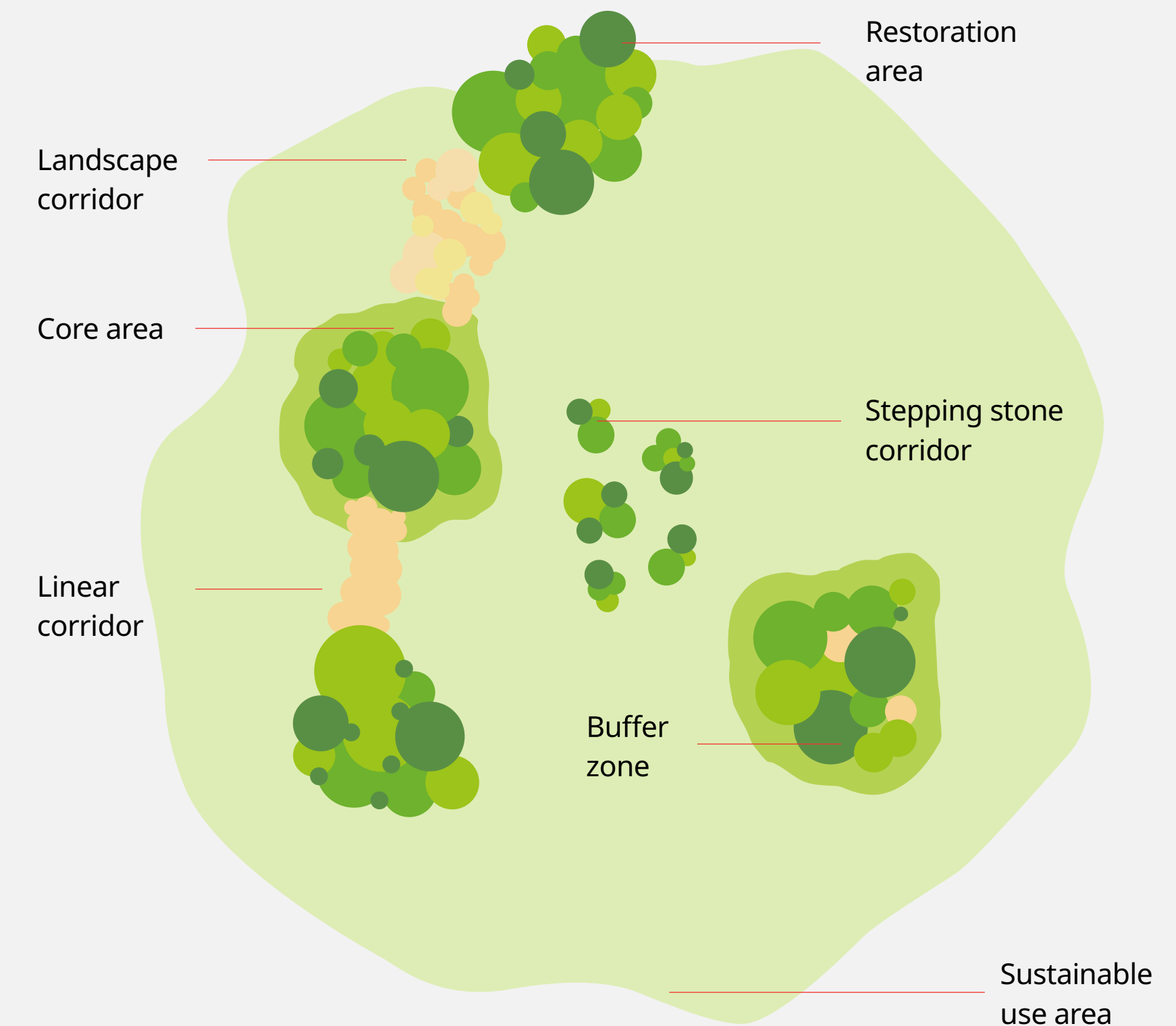
The BNG Good Practice Principles require biodiversity net gain to be achieved in ways that contribute towards local, regional, or national conservation goals. In England, for example, this could be BNG projects that support the Nature Recovery Network.

The Nature Recovery Network¹ will be a network of wildlife-rich places. It is a major commitment in the government's 25-year environmental plan² and will include newly created and restored wildlife-rich habitats, as well as corridors and stepping-stones to help wildlife populations grow and move.

What is **not** biodiversity net gain?

Some habitats are more or less impossible to recreate or take such a long time to develop and mature that they are considered to be "irreplaceable". If such habitats are damaged, BNG cannot be achieved within any reasonable timeframe. For this reason, losses of irreplaceable habitats cannot be offset to achieve BNG, and projects affecting irreplaceable habitats cannot, as a whole project, achieve BNG.

Examples of core features of a Nature Recovery Network



¹Nature Recovery Network - GOV.UK (<https://www.gov.uk/government/publications/nature-recovery-network/nature-recovery-network>)

²25 Year Environment Plan - GOV.UK (<https://www.gov.uk/government/publications/25-year-environment-plan>)

Image source: Making Space for Nature: (nationalarchives.gov.uk) Illustration from: Lawton, J.H., Brotherton, P.N.M., Brown, V.K., Elphick, C., Fitter, A.H., Forshaw, J., Haddow, R.W., Hilborne, S., Leafe, R.N., Mace, G.M., Southgate, M.P., Sutherland, W.J., Tew, T.E., Varley, J., & Wynne, G.R. (2010) Making Space for Nature: a review of England's wildlife sites and ecological network. Report to Defra.

● Road to achieving biodiversity net gain



Measuring net gains



Demonstrating measurable net gain in biodiversity means using a metric to demonstrate that losses and gains are at least balanced.

The biodiversity metric³ to be used for England's mandatory BNG will be published by the Department for Environment, Food & Rural Affairs (Defra)⁴. It uses the type, condition, and area of habitats as a proxy for change in biodiversity from before to after a development, in terms of 'Biodiversity Units' (BUs). The difficulty of enhancing an existing habitat or creating a new habitat, as well as the time taken to do so, are factored into the metric calculation. In England, a development will need to show a minimum 10% increase in BUs, compared to the baseline, to demonstrate that BNG can be delivered.

It is important to remember that BUs derived using the metric are only a proxy for biodiversity and additional ecological data must be used to design BNG based on sound ecological practices.

This means that, in practice, BNG involves creating more and/or creating better quality habitats that align with the metric requirements, support local conservation objectives for species, are suitable given local site conditions, and will be resilient to the effects of climate change over the mandatory minimum 30-year duration.

³<https://www.gov.uk/guidance/biodiversity-metric-calculate-the-biodiversity-net-gain-of-a-project-or-development>

⁴Panks et al., 2022 <http://publications.naturalengland.org.uk/publication/6049804846366720#:~:text=Biodiversity%20Metric%203.1%20has%20been%20extensively%20tested.%20Natural,as%20set%20out%20in%20the%20Environment%20Act%202021>

UK BNG policies

UK policies on BNG are developing fast, and the policies outlined are correct at the time of publication

01

England

The Environment Act 2021 mandates a 10% net gain in biodiversity for most developments. One aspect of England's approach to BNG is the use of a biodiversity metric to demonstrate that BNG has been delivered by following the mitigation hierarchy.

02

Wales

The 'Net Benefits for Biodiversity' approach by the Welsh Government is to deliver an overall improvement in biodiversity, with emphasis on the proactive consideration of biodiversity early in the design stage. As yet, there is no mandatory length of time that management is required for in Wales.

03

Scotland

The National Planning Framework requires that development proposals should contribute to the enhancement of biodiversity through, for example, restoring degraded habitats and building and strengthening nature networks and the connections between them. This should take place after the mitigation hierarchy has been applied. The Scottish Government also emphasises proactive consideration of biodiversity early in the design stage.

04

Northern Ireland

The Strategic Planning Policy Statement for Northern Ireland (SPPS, 2015) sets out the requirement to be "working towards the restoration of and halting the loss of biodiversity". This requires new projects to follow the mitigation hierarchy and set out how habitats will be conserved, mitigated or compensated for in an action plan.

Achieving BNG

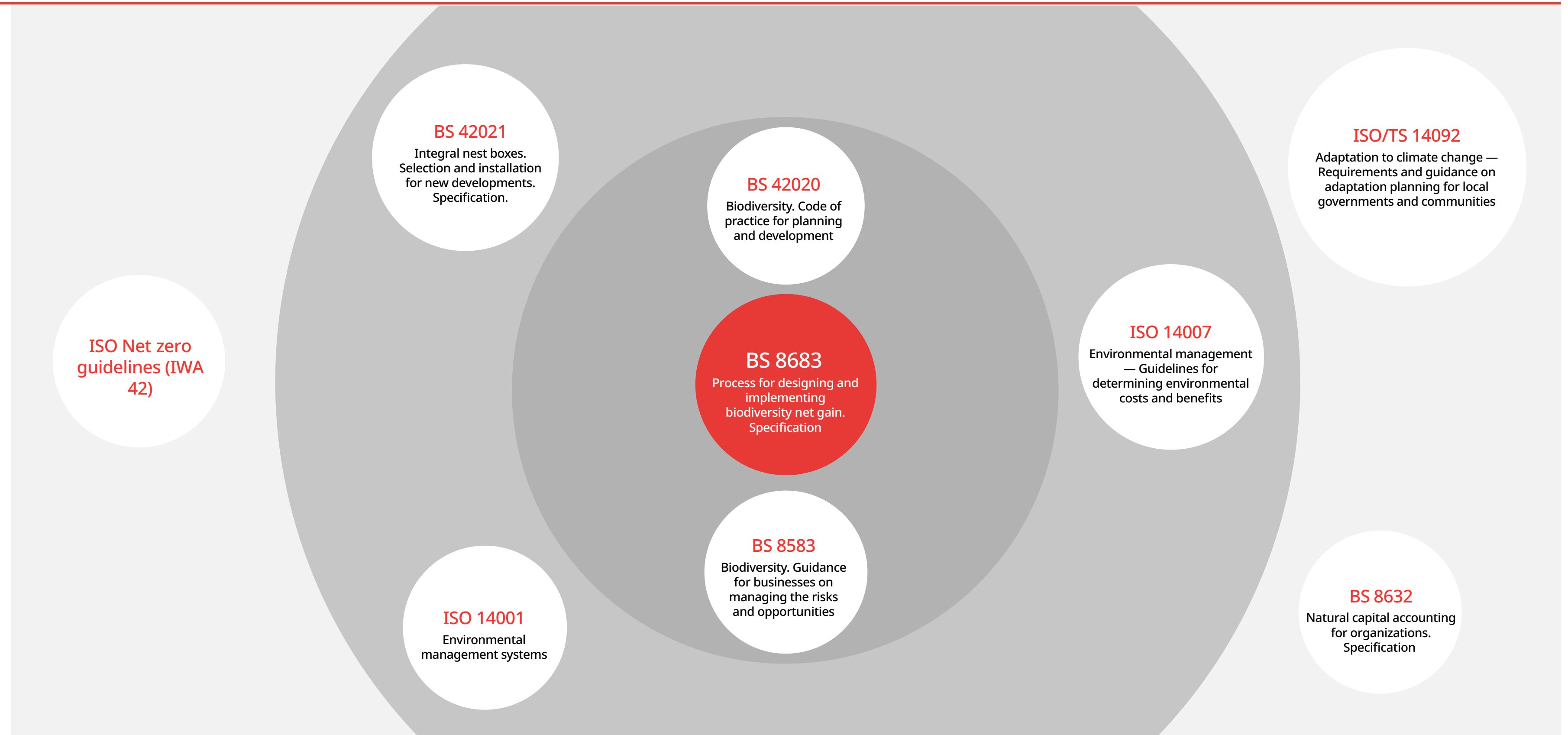
The British Standard **BS 42020 Biodiversity. Code of practice for planning and development** is the foundation for good practice when planning and managing biodiversity as part of a development project.

BS 8683 Process for designing and implementing biodiversity net gain builds on BS 42020 and sets out the process to achieve BNG. It is based on the BNG Good Practice Principles and provides developers with a step-by-step process to follow throughout the lifecycle of a project.

BS 8683 is intended for all sizes of projects, and for all types of development sectors. It can be applied to any project, including developments not requiring planning permission, as well as land or estate management.

BS 8683 is a valuable tool for local authorities overseeing the delivery of biodiversity net gain.

BS 8683 is a voluntary standard and independent of legislation and policy. It is complementary to legislation and policies, and does not replace them. Complying with requirements within BS 8683 is to follow a process to achieve BNG that is based on good practice.



BS 8683 is the key standard to help development projects to achieve BNG. It closely links with BS 42020, which is the foundation for good practice when planning and managing biodiversity as part of a development project, and with **BS 8583 Biodiversity. Guidance for businesses on managing the risks and opportunities**, which helps organizations incorporate biodiversity opportunities and risks into day-to-day management so that they protect and enhance biodiversity through their operations. At a broader level, BS 8683 links with other standards including **ISO/TS 14092 Adaptation to climate change. Requirements and guidance on adaptation planning for local governments and communities**, which provides guidance on adaptation to climate change for local governments and communities; and **BS 8632 Natural capital accounting for organizations** which is a tool for organizations to systematically measure changes in natural capital stocks. Finally, BS 8683 fully integrates with other environmental management systems such as **ISO 14001 Environmental management systems**, and can play an important part in meeting the **ISO Net zero guidelines**.

A snapshot of BS 8683

BS 8683 Process for designing and implementing biodiversity net gain sets out a process that anyone involved in infrastructure development can follow to achieve BNG. It can be applied across the UK, and provides detailed guidance and advice on how to work through the process so that anyone who is embarking on their journey to achieve BNG is supported through each stage.

The main steps are summarised in the image.



01

Preparation

Commitment to achieve BNG should be made from the early stages of project design and development. A high-level assessment of likely BNG requirements should be undertaken to ensure that commitments are reflected in key project decisions



02

Design

At the design stage, BNG is a key consideration from the start with the retention, enhancement and creation of habitat factored in as the project design progresses. Key steps for the BNG design include consulting with stakeholders and embedding the BNG design within the design-construction handover documents.



03

Implementation

This stage is often the construction stage of a development project, when implementation of a BNG design can involve protecting habitats that are to be retained and finalising agreements with any providers (or managers) of off-site BNG.



04

Maintenance and management

This final stage is to implement a long-term BNG management and monitoring plan, including provisions for immediate aftercare of newly planted habitats, then their on-going maintenance and the application of adaptive management for the duration of the plan to support any corrective actions that are needed to deliver target outcomes.

Case studies

Compilations of case studies have been produced to explore how BNG and Defra's biodiversity metric can be applied to various development types across the UK.

01

Working in partnership, CIRIA, CIEEM and IEMA have published Good Practice Principles for Development Case Studies⁵, which reproduces, in full, case studies submitted by organizations to illustrate their approach to BNG. This includes case studies from the Scottish Borders Council on renewables and biodiversity offsets, a zero environmental impact goal in Corriemoillie, and a study on creating a new urban development of 2500 homes near Aylesbury

⁵ © CIRIA 2019, <https://cieem.net/resource/biodiversity-net-gain-case-studies/>

02

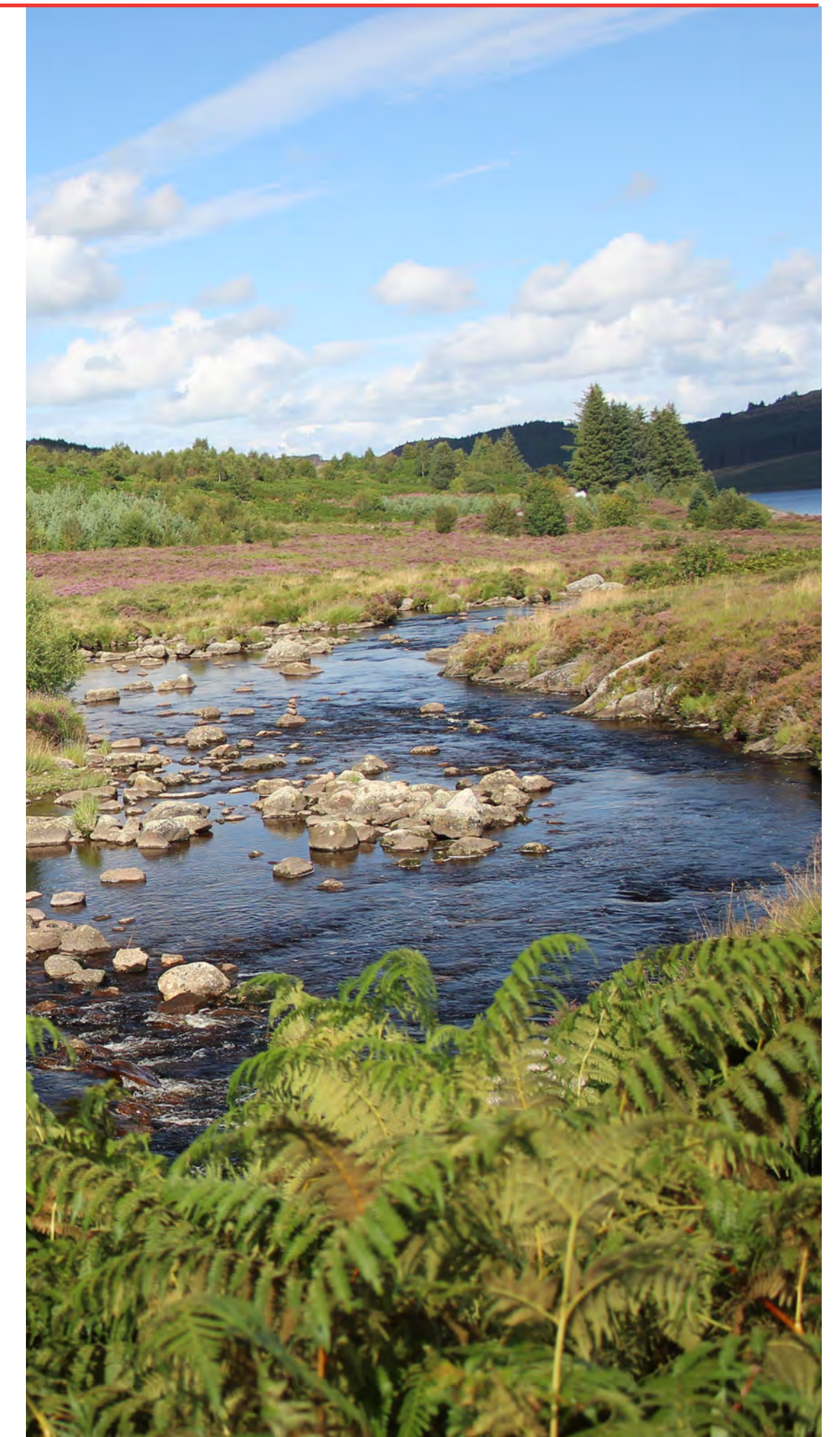
Natural England have produced case studies in its evidence record The biodiversity metric 3.1 (JP0396)⁶ to demonstrate how the Defra's biodiversity metric can be used in various scenarios including residential development, port development, river restoration, and cabling for offshore wind development.

⁶ <http://publications.naturalengland.org.uk/publication/6049804846366720>

03

The Greater Manchester Natural Capital Group worked with developers to retrospectively test the Defra's biodiversity metric on a number of development schemes. The case studies on the Greater Manchester Combined Authority's webpage on Delivering Biodiversity Net Gain in Greater Manchester⁷ details the development process, outcomes, and lessons learned from these projects.

⁷ <https://www.greatermanchester-ca.gov.uk/what-we-do/environment/natural-environment/biodiversity-net-gain>



Act now!

This little book is a straightforward guide to make it easier for developers to understand BNG as the various BNG policies are introduced across the UK. BS 8683 is the next step to guide you through the process of successfully designing and implementing BNG within your building and infrastructure projects.

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