



Summary and Key Findings

Biodiversity and the area-based approach in Wales

How can the sustainable management of natural resources (SMNR) framework deliver nature recovery?



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About this report

The Royal Society for the Protection of Birds (RSPB) Cymru commissioned Cardiff University's Sustainable Places Research Institute to develop a report which addressed the question, "how can Area Statements in combination contribute to achievement of biodiversity targets in Wales?"

To tackle this question, literature reviews and meta-analyses were conducted on four key topics – the legislative and policy context in Wales, comparable international approaches, evaluating ecosystem services toolkits for biodiversity/ resilience provision, and the relationship between biodiversity and ecosystem resilience. In addition, the University partnered with Bridgend County Borough Council, REACH and the Ecosystems Knowledge Network to design and host a stakeholder workshop to explore the question on a more local scale.

The report is divided into five chapters, and is accompanied by a 'Summary and Key Findings' document which brings together the conclusions from all five chapters, and demonstrates how it is possible for the Area Statement process to be an effective means of ensuring Wales meets its biodiversity objectives.

Full report contents

Summary and Key Findings

Chapter 1 – The legislative context for the area-based approach in Wales

Chapter 2 – International approaches to area-based management of biodiversity

Chapter 3 – An evaluation of ecosystem services toolkits

Chapter 4 – The relationship between biodiversity and ecosystem resilience

Chapter 5 – Naturally Bridgend stakeholder workshop – local perspectives on SMNR and nature recovery

The full report and the summary can all be downloaded from

<http://bit.ly/SPRlareastatements>

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Summary and Key Findings

Key Findings

This report illustrates the need for and value of incorporating biodiversity as a critical component of Area Statements. It reviews the legislative and policy context in Wales and comparable international approaches (Chapters 1 and 2), evaluates the suitability of ecosystem services toolkits for delivering resilient ecosystems and nature recovery objectives (Chapter 3), examines the relationship between biodiversity and ecosystem resilience (Chapter 4), and explores with stakeholders at a local level how biodiversity objectives can be met through SMNR (Chapter 5).

The evidence detailed in this report demonstrates that SMNR and Area Statements can be an effective means of Wales meeting its biodiversity objectives by using the following guiding principles:

- **Visibility of biodiversity priorities:** ensure that existing biodiversity priorities and objectives across land and sea are understood by all involved as integral to achieving SMNR
- **Local action ↔ national policy:** support the delivery of SMNR at local level, while communicating how it links to national policy
- **Strong leadership:** catalyse action through strong local leadership
- **Multi-level communication:** secure effective coordination and communication between stakeholders, and SMNR and biodiversity specialists
- **Visually represented data:** use appropriate tools to visually represent data to facilitate understanding of the spatial linkages between biodiversity, ecosystem services and priority actions
- **Build relationships and participation:** widen and deepen stakeholder participation to ensure it is meaningful and give the time needed to build strong relationships and understanding



Summary

NRW is required to produce Area Statements under the Environment (Wales) Act, 2016 as part of the national framework for the Sustainable Management of Natural Resources (SMNR). The definition and objective of SMNR are outlined in section 3 of the Environment Act:

“(1) In the Part, ‘sustainable management of resources’ means—(a) using natural resources in a way and at a rate that promotes achievement of the objective in subsection (2), (b) taking other action that promotes achievement of that objective, and (c) not taking action that hinders achievement of that objective. (2) The objective is to maintain and enhance the resilience of ecosystems and the benefits they provide and, in so doing—(a) meet the needs of present generations of people without compromising the ability of future generations to meet their needs, and (b) contribute to the achievement of the well-being goals in section 4 of the Well-being of Future Generations (Wales) Act 2015 (anaw2).”

The objective of SMNR demonstrates strong links to the Well-being of Future Generations (Wales) Act, 2015 by requiring a contribution to all seven goals, one of which (A Resilient Wales) recognizes the importance of biodiversity and ecosystems to ecological resilience but also to Wales’ society and the economy¹.

Species diversity plays an important role in the healthy functioning of ecosystems, ecological resilience and Wales’ capacity to adapt to change. The relationship between the four main attributes of ecosystem resilience is integral:

- Diversity: the range of variation, from genes to species and from habitats to landscapes, which supports the complexity of ecosystem functions and the delivery of ecosystem services;
- Extent/ scale: habitat area that supports species diversity and ecosystem function;
- Condition: how a system is managed, inputs applied, resources extracted and impacts from management of surrounding land;



Photo: Andy Hay, rsdb-images.com

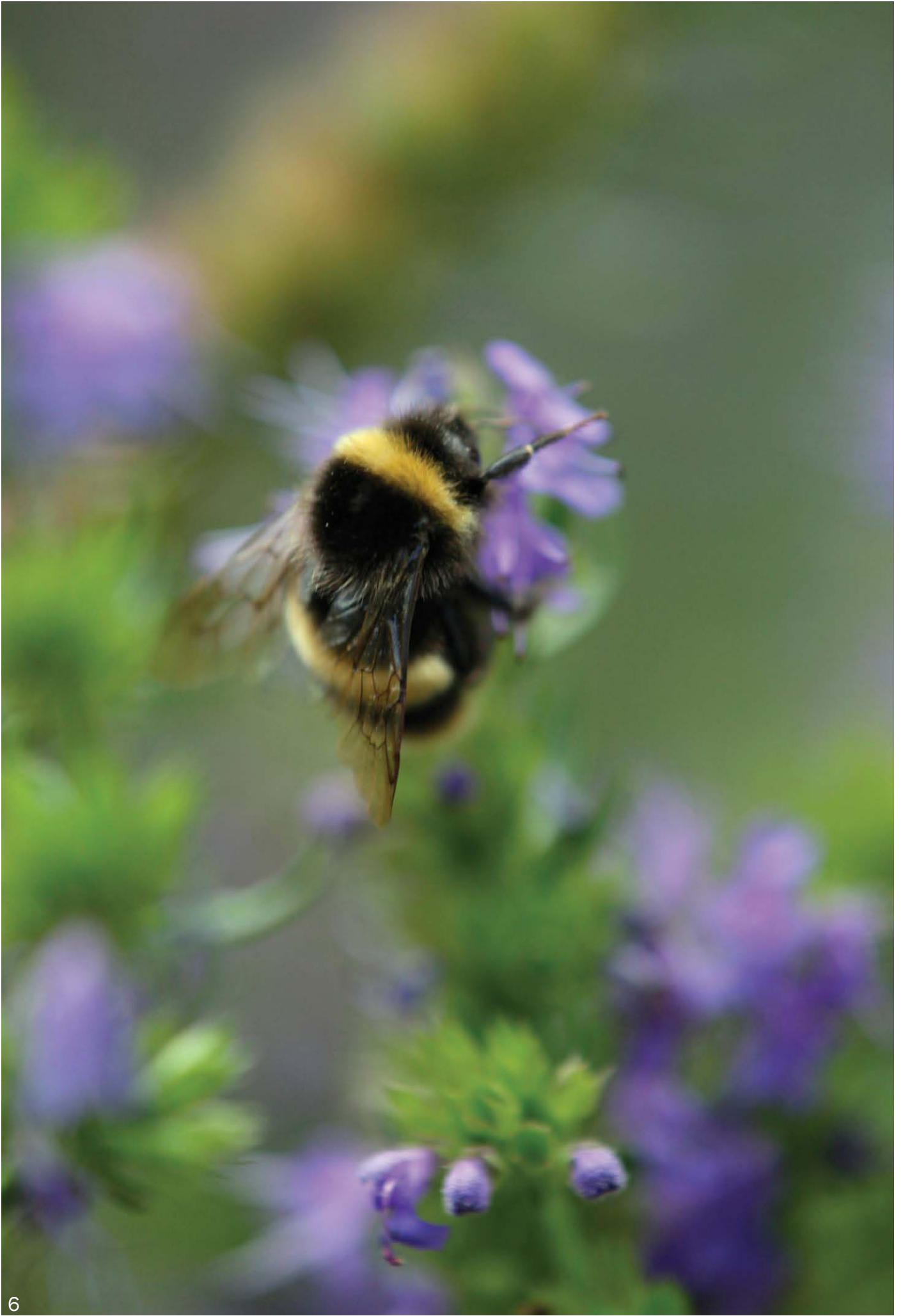
- Connectivity: the movement that occurs within and between ecosystems, increasing the effective habitat range of species and the source pool for seed and genetic dispersal.

These components work together to form a fifth attribute – adaptability, which refers to the dynamic nature of ecosystems and their ability to adapt to change². However, the extent, condition and connectivity are important because of how they impact diversity, which is the linchpin of adaptability, and therefore resilience (see Chapter 4 for a review of the research on this). Ecosystems can be considered resilient when they feature the capacity to deal with disturbances, either by resisting, recovering or adapting to them, whilst retaining the ability to deliver goods or services².

Additionally, biodiversity supports economic resilience through the provision of services, for example flood control. A diversity of tree species can help pull water into varying depths of the soil profile and also lead to a woodland area with greater resistance to pests or diseases, that might otherwise destroy a woodland consisting of a single evergreen species. Furthermore,

¹ Well-being of Future Generations (Wales) Act, 2015, section 4 – “A Resilient Wales: A nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change). <http://www.legislation.gov.uk/anaw/2015/2/section/4/enacted>

² Natural Resources Wales (2016) State of Natural Resources Report (SoNaRR): Assessment of Sustainable Management of Natural Resources. Technical Report. Chapter 4 Resilient Ecosystems, pp. 6-8 <https://naturalresources.wales/media/679405/chapter-4-resilience-final-for-publication.pdf>



social well-being is increased through increased biodiversity, which is a source of enjoyment and relaxation for nature lovers, and can attract people into areas through a variety of eco-tourism and recreation opportunities, thereby boosting economic resilience, particularly important for rural communities.

While the Environment (Wales) Act and the Well-being of Future Generations (Wales) Act set out legislative commitments for sustainable management of natural resources and sustainable development respectively, Wales' legal commitments to maintaining and enhancing biodiversity extend beyond Welsh legislation to UK, EU and International commitments.

International commitments notwithstanding, Welsh legislation clearly states that all public authorities have a duty to “seek to maintain and enhance biodiversity [...] and] in so doing promote the resilience of ecosystems” (section 6(1) Environment (Wales) Act). Biodiversity recovery is a key goal of the Environment (Wales) Act, expressed clearly by the Welsh Government in Wales its Natural Resources Policy³ and described as an integral component of delivering ecosystem resilience in NRW's SoNaRR⁴. The full range of legislative and policy commitments and drivers in Wales relevant to Area Statement development are summarized in **Chapter 1**. Tables 1-4 include details of all statutory and non-statutory designated sites as well as planning instruments which directly or indirectly support biodiversity. Chapter 1 acts as a baseline checklist of what Natural Resources Wales (NRW) and other bodies are obliged to comply with and/ or utilise in developing Area Statements.

Chapter 2 explores ways in which spatial approaches to biodiversity management, similar to the development of Area Statements in Wales, have been used in other countries. Australia, South Africa and California have all implemented spatial approaches with varying degrees of success and provide learning opportunities for the development of Area Statements in Wales. The use of ecosystem service assessment toolkits can help to identify areas important for biodiversity conservation. However, these processes do not occur in a vacuum free from bias. Stakeholders participating in the

process of natural resource management planning—as will be the case for Area Statements—all have an agenda to promote, which may or may not support biodiversity objectives. Making trade-offs explicit does not predetermine an outcome necessarily beneficial to biodiversity, and particularly not in all places at all times. These examples illustrate how important it is to strike a balance between the competing demands of natural resource users, which if left unaddressed in Wales could undermine the achievement sustainable management of natural resources.

Chapter 3 provides a summary of nine toolkits available for assessing ecosystem services and measures each tool against a list of 20 criteria. Ecosystem service toolkits enable the user to assess the delivery of different ecosystem services in a specified location, based on information given. The objective of different toolkits varies, but in general they allow the user to understand how changes in natural resource management will affect the delivery of different ecosystem services, in order to better understand the trade-offs associated with different management decisions.

Eight of the nine toolkits reviewed incorporate some element of biodiversity within their calculation of ecosystem service delivery. SENCE, LUCI, EcoServ-GIS and TESSA all explicitly map areas of biodiversity and identify areas important for conserving or enhancing biodiversity. However, the treatment of ecological resilience is far less comprehensive.

Table 3 in **Chapter 3** considers how each tool addresses each of the five attributes of resilience (diversity, extent, condition, connectivity and adaptability). Of the tools that map biodiversity, only SENCE and LUCI also address elements of ecosystem resilience and encourage stakeholder engagement, both critical elements to meeting the requirements of the Environment (Wales) Act. As a result, these toolkits have the functionality to help stakeholders to prioritize actions in different places that maintain biodiversity and healthy functioning ecosystems for ecosystem resilience, and maximize economic, social and cultural benefits to Welsh communities.

³ “[O]ur aim is to improve resilience and reverse the decline of biodiversity.” Welsh Government (2017) Natural Resources Policy, pp.10. <https://gov.wales/docs/desh/publications/170821-natural-resources-policy-en.PDF>

⁴ Natural Resources Wales (2016) State of Natural Resources Report (SoNaRR): Assessment of Sustainable Management of Natural Resources. Technical Report. Chapter 4 Resilient Ecosystems. <https://naturalresources.wales/media/679405/chapter-4-resilience-final-for-publication.pdf>



It is important to note, that with 20 criteria for evaluation, none of the ecosystem service assessment tools can act as a magic bullet for delivering all of the functionalities needed for implementing the Area Statements. More specifically, an ecosystem service approach does not explicitly ensure biodiversity protection or recovery, particularly in the case of priority species. However, if stakeholders are clear in identifying and agreeing the most important criteria for an area, using a well-matched ecosystem service assessment toolkit can assist in making explicit the trade-offs between multiple natural resource management strategies.

When considering which ecosystem service assessment toolkit is best matched, the following points should be considered as minimum requirements:

- Sufficient data availability
- Understanding of the characteristics of the study area
- Availability of sufficient resources
- Clarity over the policy context and the scientific purpose of the study

Chapter 4 of the report provides a review of the scientific literature for evidence of the linkages between biodiversity, healthy functioning ecosystems and ecological resilience. While the mechanics of how biodiversity relates to ecological resilience is still being investigated, the body of research as a whole is unequivocal that ecological resilience is compromised when biodiversity is diminished. Healthy functioning ecosystems are critical for society for many reasons; high on the list are the services that we receive from natural ecosystems that support society, i.e. ecosystem services.

Wales' natural resources provide many ecosystem services with economic, social and cultural benefits. For example, from SoNaRR 2016⁵:

- £385 million from agriculture to the Welsh economy every year. This figure underpins the £6.1 billion annual turnover and £1.55 billion gross value added attributed to the on-farm production and food manufacturing sector.
- 951 million litres of drinking water per day.
- £499.3 million from the forestry sector* to the Welsh economy (*covers forestry and logging, manufacture of wood and products of wood and cork, and manufacture of paper and paper products).
- 8,919 gigawatt hours of energy from renewable sources, and rising, creating a renewable energy industry that employs 2,000 people.
- 410 million tonnes of carbon stored in soil to soak up emissions and protect against climate change.
- £2,870 million in tourism to Wales.
- 25% of adults meeting the recommended level of physical activity through outdoor pursuits.
- £18.2 million in health benefits to people from walking the Wales Coast Path.
- £840 million and 30,000 jobs from the historic environment sector.

All of these benefits are dependent upon healthy functioning ecosystems which biodiversity supports.

⁵ Natural Resources Wales (2016) A Summary of the State of Natural Resources Report (SoNaRR): Assessment of Sustainable Management of Natural Resources. <https://cdn.naturalresources.wales/media/682366/sonarr-summary-september-2016-edited-august-2017.pdf>

However, without sustainable management, many of these activities can threaten the degradation of biodiversity, which presents risks to the future delivery of these services.

Theoretically it should be possible to develop Area Statements which identify win-win outcomes. To test how this might be achieved and to examine more broadly how an Area Statement process could work, report partners commissioned the Ecosystems Knowledge Network to design and facilitate a one-day workshop with stakeholders, using Bridgend County Borough as a case study. The Naturally Bridgend workshop, held on 25 October 2017, brought together individuals across a spectrum of public, private and charity sectors. **Chapter 5** contains a detailed report on this workshop in which stakeholders sought new ways of working together more effectively in order to identify opportunities for enhancing biodiversity.

The workshop was an opportunity to understand how stakeholders relate to biodiversity within their needs and priorities, and to identify the gaps in knowledge that act as barriers to taking advantage of opportunities. Key outcomes included:

1. The value of maps and information resources.
2. The need to help stakeholders navigate complexity.
3. The need for local leadership and vision for both SMNR and biodiversity.
4. Understanding the diverse perspectives and capabilities of stakeholders.
5. Targeted action for biodiversity is not always easy to integrate with local priorities.

Strong local leadership and vision for SMNR and biodiversity can be used to help stakeholders navigate the complexity of ecosystem resilience, linkages across ecosystems and the application of SMNR. Local leadership can be used to mobilize broad stakeholder engagement, which contributes more diverse perspectives and capabilities. While more diverse perspectives can lead to increased conflicts of interest, it can also generate more ideas and connections between priorities. Maps generated through the use of an ecosystem service assessment toolkit can help stakeholders to understand how biodiversity is





situated across the landscape in different habitats, and how the delivery of different ecosystem services is linked to biodiversity and different habitat types. Visually representing real data makes it possible for non-expert stakeholders to engage with complex relationships in both space and time.

Maps at the local to regional scale also enable stakeholders to relate national policy targets to local priorities, an important process recommended as a result of analysis of both the workshop activity and the review of spatial approaches to biodiversity management used in other countries. Discussion and understanding generated from the use of such visual tools may also facilitate recognition of a wider range of actions for targeting biodiversity and other local priorities, such as economic development, and reduction in antisocial behaviour.

Area Statements have the potential to help stakeholders to begin to see their relationship to biodiversity in ways they have not realised before. The Naturally Bridgend workshop framed local issues in the context of biodiversity in order to see how stakeholders perceived biodiversity in relation to their priorities. As this was a difficult task for many workshop participants, it raises doubts as to whether or not stakeholders would tend to consider biodiversity objectives when working towards a plan to sustainably manage natural resources in the development of an Area Statement. To realise stakeholders' potential to identify win-win scenarios, consideration should be given to explicitly stating the need to achieve biodiversity objectives in any Area Statement.

The Naturally Bridgend workshop demonstrated that stakeholders have a broad and positive view of the environment, but turning SMNR concepts into practical outcomes requires long-term dialogue and coordination. In addition to local leadership to engage and connect stakeholders, the process of developing Area Statements will require an investment of time. Allowing stakeholders time to build and deepen both relationships and technical understanding may result in a cooperative plan that meets the needs of more people while achieving biodiversity objectives.

Six guiding principles to help the SMNR framework deliver nature recovery

As a result of the cumulative work of this report, there are a number of principles that can be used to guide the effective delivery of biodiversity commitments through the Sustainable Management of Natural Resources Framework.

- **Visibility of biodiversity priorities:** ensure that existing biodiversity priorities and objectives across land and sea are understood by all involved as integral to achieving SMNR
- **Local action ↔ national policy:** support the delivery of SMNR at local level, while communicating how it links to national policy
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By adhering to these principles in combination, the development of Area Statements can contribute to achieving Wales' biodiversity commitments and building resilient ecosystems and more sustainable communities with benefits for all of society.



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