

INITIAL
GREEN INFRASTRUCTURE
ASSESSMENT FOR SWANSEA LDP2

DECEMBER 2024

edp



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INTRODUCTION



1. INTRODUCTION

Green Infrastructure (GI) describes a multi-functional network of natural and managed spaces that connect nature, people and communities to the benefit of both. GI plays a vital role in supporting sustainable development and directly and indirectly contributes to the wellbeing of our people, the natural world and the environment.



View of Swansea and Swansea Bay from Mumbles

Understanding the extent, role and quality of existing GI, and understanding its function as part of a wider network, is fundamental to the future vision and growth of Swansea. With this understanding of the existing GI, policies and initiatives can be established that protect, expand and enhance these essential networks to provide more resilient places and spaces that can be enjoyed now, and by future generations.

This Green Infrastructure Assessment (GIA) of the City and County of Swansea has been conducted on behalf of the Council by The Environmental Dimension Partnership Ltd (EDP). The GIA aims to establish the existing GI resources in, and linked to, Swansea. It sets out the vision and objectives that will lead to the creation of healthier and more resilient environments across the County from the strategic to the site level.

Swansea is a unique and diverse region, with internationally renowned beaches, moorland, heaths, mountains, bays and estuaries, and is blessed with an abundance of heritage assets and natural resources containing some of the country's rarest and most threatened flora and fauna.

Shaped by local geology, weather patterns and a long history of human occupation, Swansea has a special character that makes it a highly desirable place to live and brings large numbers of tourists to visit the area. GI in Swansea also nurtures human health and wellbeing by providing opportunities for local food production/ growing, and provides endless opportunities for recreation on its waterways, walking/cycling routes and hillsides, to the benefit of both residents and visitors. In summary, these resources serve a vital function, whether for biodiversity, wildlife, active travel, health and wellbeing, flood control or climate regulation.

“a lovely town...crawling, sprawling by a long and splendid curving shore.

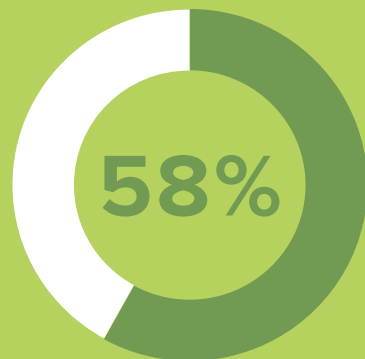
- Dylan Thomas

1.01 Swansea GI By-the-Numbers

The County of Swansea covers an area over 37,000 hectares (ha), almost 21,000 ha of which includes some sort of GI, including hundreds of kilometres of publicly accessible walking and cycling routes.

The graphic on this page gives a sense of the quantity of some of the GI assets in the County. GI in the context of this overall percentage of Swansea includes the following (agricultural land excluded):

- All international and nationally designated ecological sites (e.g. Sites of Special Scientific Interest (SSSI), Ramsar, Special Areas of Conservation (SAC), Special Protection Areas (SPA), Peatlands, National Nature Reserves, and Ancient Woodland);
- Sites of Importance for Nature Conservation (SINC);
- Regionally Important Geodiversity Sites (RIGS);
- Regional Parks and Gardens and Local Nature Reserves;
- Formal and informal open space and common land; and
- Forested, natural and semi-natural green spaces.



**GREEN
INFRASTRUCTURE**



**SWANSEA
COUNTY**

37,772
HECTARES



KILOMETRES OF
**PUBLIC RIGHTS
OF WAY AND
BRIDLEWAYS**



52 SITES OF SPECIAL
SCIENTIFIC
INTEREST



1,721
HECTARES
ANCIENT
WOODLAND



View of Loughor Estuary from Cefn Bryn, Gower

1.02 The Climate and Nature Emergency

Fragile GI resources are under threat from a host of factors and influences both locally and globally. In 2019, Swansea Council declared a Climate Emergency, striving for a net zero carbon Swansea by 2050. As part of its Climate Change Charter, the Council has adopted a nature recovery action plan to address human-caused loss of biodiversity and global climate change. This strategy is wide-ranging, including nature conservation, wellbeing and ecological management initiatives.

1.03 Purposes of the GIA

This GIA forms a baseline information resource to assist in the formation of future initiatives, policies and proposals, with the particular purpose of ensuring GI is appropriately protected, enhanced and expanded across the County. This is to ensure that Swansea's character and environment is sustainably managed into the future.

1. The GIA will inform the preparation of the Swansea Local Development Plan (2023-2038), known as LDP2. The GIA is currently described as an 'Initial GIA'. This reflects its role in providing an evidence base for the 'Pre-Deposit' (Preferred Strategy) stage of the LDP2 process, including informing its vision and strategic objectives. This also reflects that the GIA will continue to be refined to inform future key stages in the formation of LDP2, including the drafting of detailed policies

and allocating sites in the 'Deposit' Plan. The GIA will be submitted alongside the Deposit LDP2 as a key document for 'Examination' as part of the process of adopting LDP2 as the new development plan for Swansea;

2. The GIA can also be used to set the baseline and starting point for a potential Council GI Strategy. Such a strategy can set out how the vision and objectives identified in this GIA could be implemented, and can also provide a more detailed and site specific approach to guide future Council activities and projects; and
3. The GIA is also a source of information and guidance to be used by developers to inform the design and evolution of schemes, and should be referred to in their GI Statements.

1.04 GI Definitions

GI is defined in Planning Policy Wales Edition 12 (PPW) as a “network of natural and semi natural features, green spaces, rivers and lakes that intersperse and connect places. Component elements of green infrastructure can function at different scales and some components, such as trees and woodland, are often universally present and function at all levels. At the landscape scale green infrastructure can comprise entire ecosystems such as wetlands, waterways, peatlands and mountain ranges or be connected networks of mosaic habitats, including grasslands. At a local scale, it might comprise parks, fields, ponds, natural green spaces, public rights of way, allotments, cemeteries and gardens or may be designed or managed features such as sustainable drainage systems. At smaller scales, individual urban interventions such as street trees, hedgerows, roadside verges, and green roofs/walls can all contribute to green infrastructure networks.”

“

Green infrastructure is capable of providing several functions at the same time and as a result offers multiple benefits, for social, economic and cultural as well as environmental resilience.

- PPW 12

PPW also notes that “The Environment (Wales) Act 2016, provides a context for the delivery of multi functional green infrastructure. Its protection and provision can make a significant contribution to the sustainable management of natural resources, and in particular to protecting, maintaining and enhancing biodiversity and the resilience of ecosystems in terms of the diversity within and connections between ecosystems and the extent and condition of these ecosystems, so that they are better able to resist, recover from and adapt to pressures.”

As can be seen from these GI definitions, the benefits from GI are wide-ranging. These ecosystem services can be grouped into their cultural, regulating, provisioning and supporting functions, as summarised and illustrated in **Figure 1**.

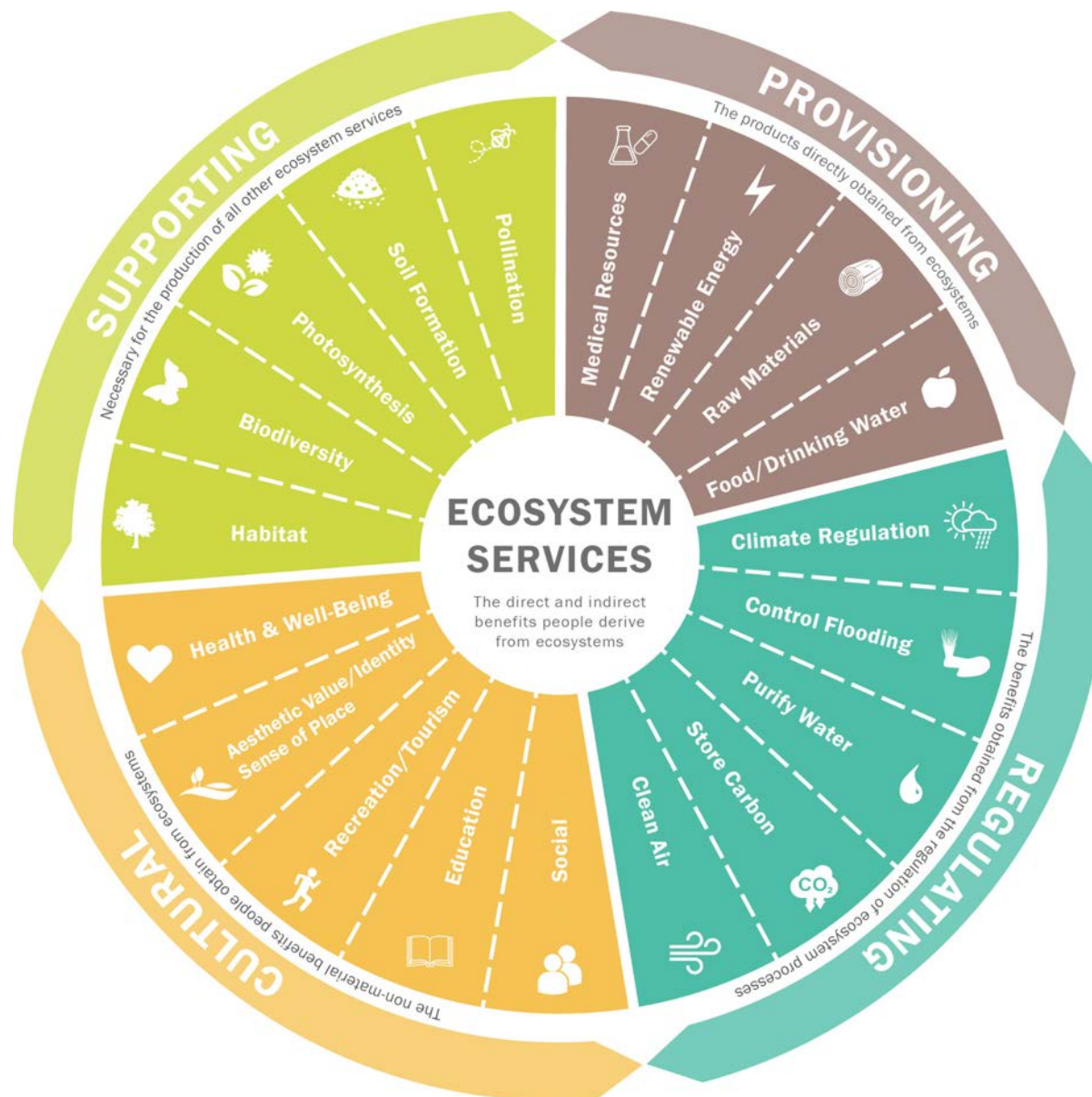


Figure 1: Ecosystem Services

1.05 Multi-functional GI

Ecosystem Services provide multiple direct and indirect benefits for human wellbeing and quality of life through the environment and healthy ecosystems. These wide ranging benefits from ecosystems, or natural capital, are essential to sustainability and human life and can be delivered through a variety of GI types and networks.

This 'multi-functionality' is central to the GI concept and can apply to individual sites and routes, but it is when the sites and links are taken together that we achieve a fully multi-functional GI network that provides the numerous social, cultural and environmental benefits.

For the purposes of this GIA, the major elements of multi-functional GI have been grouped into twelve categories (see below), each providing a range of ecosystem services to Swansea. These icons will be used throughout the GIA in order to reference the multi-functional GI services being promoted or prioritised, with accompanying specifics as needed.

1.06 How to use this GIA

This GIA has three key purposes, identified on **page 3**. These are set out below with brief instructions on how the GIA should be used in each case. Further recommendations in each instance are provided in the Conclusions and Recommendations on **page 35**.

- The GIA will inform the LDP2 and provides an evidence base of the Preferred Strategy stage, underpinning the vision and strategic objectives for Swansea's LDP2. The GIA should inform spatial decisions around where development is located, seeking to protect sensitive existing GI from impacts wherever possible. The GIA also seeks to capitalise on the net benefits which development needs to deliver to drive investment in GI enhancement where appropriate, and where it contributes to the objectives of this GIA. ;
- The GIA will also set the baseline and starting point for a potential Council GI Strategy. The GI Strategy can set out how the vision and objectives of the GIA can be implemented, and provide a more detailed and site specific approach to GI

that will guide future Council activities and projects. The GI Strategy should explore each of the objectives in greater detail, prioritising those which deliver the greatest positive benefits for the least effort in the first instance. It is considered critical that the GIA and GI Strategy drive deliverable, short-term physical change and improvement, which will pioneer and catalyse further improvement in the future; and

- The GIA also provide a source of information and guidance to be used by developers to inform the design of their schemes. Developers and their design and planning teams should refer to the GIA as sites are considered and development proposals evolve. The GIA should be considered as part of the background to the preparation of ecological work, landscape proposals and in the preparation of GI Statements. The GIA will help identify those functions of GI which are a priority in each of the GITAs and development should seek to contribute positively to these wherever possible. The intention is that the GIA will be a material consideration as part of the planning process, with development potentially a key driver of the GIA's objectives.



**HABITAT AND
WILDLIFE**



**TREES AND
WOODLAND**



**FOOD
PRODUCTION**



**COMMUNITY
STRENGTHENING**



**WALKING AND
BIKING**



**BUSES AND
TRAINS**



**HEALTH AND
WELLBEING**



**TOURISM AND
CULTURE**



**WATER QUALITY/
FLOOD
PROTECTION**



AIR QUALITY



**CLIMATE CHANGE
ADAPTATION**



**SUSTAINABLE
ENERGY**

1.07 GIA Scale and Geography

GI by its nature is a connected network, and therefore does not respect boundaries between counties, cities and towns.

The GIA takes account of the County's connectivity to surrounding areas, including the marine environment and surrounding counties, but also the wider national and global systems of which they are a part. However, to keep the scope of the GIA reasonable and to ensure it is conducted at an appropriate scale, baseline data and analysis is primarily focussed on the County and a 5km area surrounding the County boundary.

Furthermore, GI can be considered to be a system that is functioning and providing benefits at a range of scales, from international and national scales all the way to the site scale. These scales may also vary depending on the function and type of GI under consideration, for example, active travel may be a local GI asset compared to SSSI that may be both a local and international asset. For the purposes of the GIA, GI has been considered at three main levels:

- Strategic (County-wide) scale;
- Neighbourhood/Settlement scale or Target Areas; and
- Local and site scale.

The GIA approach is primarily addressing the 'strategic' and 'neighbourhood' scale of GI, whereas the site specific local scale GI could be part of the future GI strategy to be developed later or by the allocated site policies adopted under the LDP2.

Given the scale and quantum of GI across the County it is equally important that the GIA, any future GI Strategy for the County as a whole, and the LDP2 itself, focus on those sites, projects and objectives that:

- Will deliver the greatest benefits; and
- Are the most achievable/deliverable.

While a myriad of different ideas and objectives could be identified, if these are too numerous, too complex, and obstructed by issues such as land ownership or lack of funding then they will likely come to nothing. This GIA is inherently focused on developing an ambitious approach to GI enhancement and protection, that has the potential to be delivered during the LDP2 plan period.

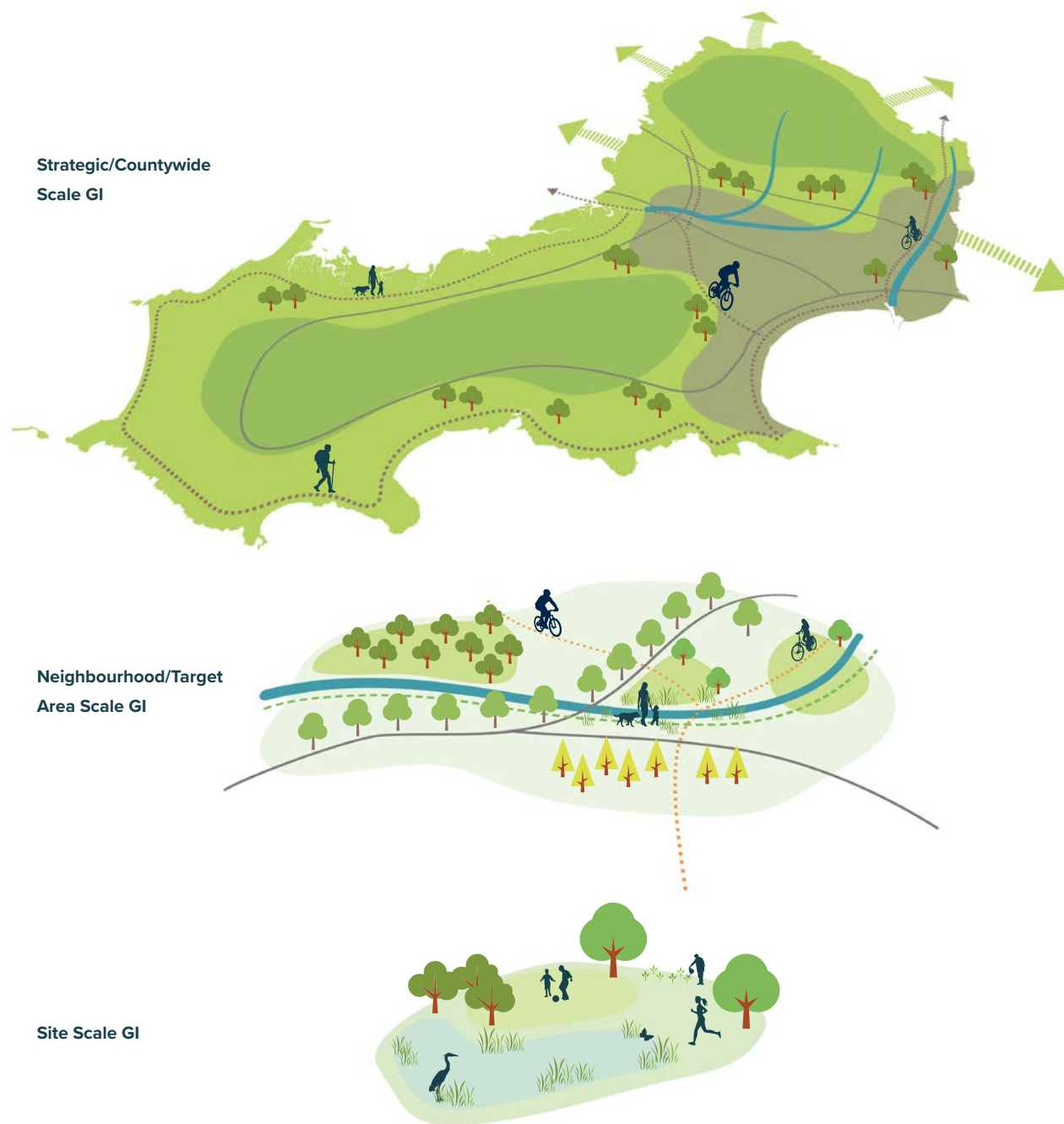


Figure 2: Scales of GI

PLANNING AND LEGISLATION



2. PLANNING AND LEGISLATION

The importance of GI is highlighted throughout policy in Wales, and in particular its importance in addressing climate change and the nature emergency. In the following section, the most relevant policies and reports are summarised in order to frame this GIA in a wider context, particularly those that relate directly to Swansea and the South West of Wales. However, the following is a summary only and not exhaustive, therefore the relevant documents should be consulted for more specific information.

2.07a Welsh Government Declaration of Climate and Nature Emergencies

In 2019, the Welsh Government declared a climate emergency and set a target to reach net zero carbon by 2050 (Welsh Government, 2019), and declared a nature emergency in 2021. In 2022, the Welsh Minister for Climate Change announced a “*Biodiversity Deep Dive*” to support nature recovery in Wales and setting a target of “*protecting and effectively managing at least 30% of our land, freshwater and sea for nature by 2030*” (known as 30 by 30). These declarations place GI, ecosystem resilience and climate change adaptation at the heart of Welsh policy and have shaped this GIA.

2.07b Future Wales – National Policy

Future Wales – the National Plan 2040, sets out the country’s planning framework for sustainable living and the future growth of Wales. As a national framework, it focuses on solutions to issues and challenges at a national scale and aims to “*be built on by Strategic Development Plans at a regional level and Local Development Plans at local authority level*”. Its purpose “*is to ensure the planning system at all levels is consistent with, and supports the delivery of, Welsh Government strategic aims and policies.*”

Several Welsh Government strategies and policies informed and helped shape Future Wales, including the Welsh National Marine Plan, the Transport Strategy, Prosperity for All: Economic Action Plan, Natural Resources Policy and the Low Carbon Wales plan. Many of these strategies and policies address some aspect of GI and are therefore incorporated within Future Wales.

The Future Wales Spatial Strategy identifies and connects key national and regional centres, identifies priorities for the planning system and a framework for the management of natural resources. Specifically related to GI, the spatial strategy “*contributes to achieving decarbonisation and biodiversity objectives and supports national ambitions for improving health*” and promotes sustainable growth that will “*involve achieving biodiversity and green infrastructure enhancements in our urban areas*” and requires “*effective and innovative nature based solutions to the challenges of urban form*”. At a national scale, the spatial strategy identifies the importance of the Gower National Landscape and a National Growth area in Swansea (see **Figure 3**).

Future Wales contains a range of policies which relate in part to GI, however, those specifically relating to and most relevant to GI are summarised below:

- Policy 2: Shaping Urban Growth and Regeneration – Strategic Placemaking, which states “*The growth and regeneration of towns and cities should positively contribute towards building sustainable places that support active and healthy lives, with urban neighbourhoods that are compact and walkable, organised around mixed use centres and public transport, and integrated with green infrastructure*”;

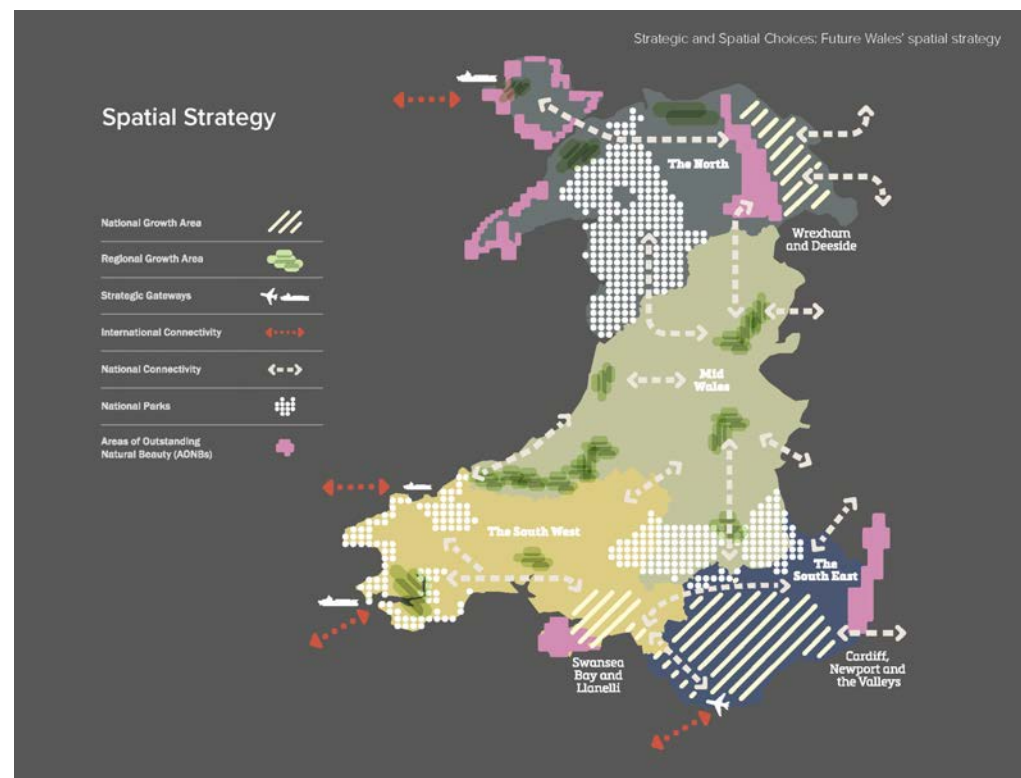


Figure 3: Spatial Strategy (source: Future Wales)

“ In urban areas, including the National Growth Area of Swansea Bay and Llanelli....the enhancement (net-benefit) of biodiversity and the provision of green infrastructure must both shape growth strategies and be fully integrated as part of location and design solutions for proposed development.

- Future Wales

- Policy 8: Flooding. This policy promotes “*nature based solutions as a priority*” for new and improved flood risk management that should be “*working in harmony with aspirations to develop green infrastructure and to provide a net benefit for biodiversity*”;
- Policy 9 - Resilient Ecological Networks and Green Infrastructure. This policy aims to “*To ensure the enhancement of biodiversity, the resilience of ecosystems and the provision of green infrastructure*”. The policy firmly places GI, and the ecosystem services provided, as an essential part of a national sustainable growth policy and provides indicative maps that are aimed at providing “*the starting point for considering resilience of ecological networks for nature recovery and enhancement (net benefit) as part of green infrastructure assessments*”. The National Natural Resources Themes map in Future Wales (**Figure 4**) shows the Gower and the Mawr as biodiversity hotspots, and part of a biodiversity network that extends through the Bannau Brecheiniog National Park and beyond. Swansea is also shown as being important for natural flood management;
- Policy 11 - National Connectivity, and Policy 12 - Regional Connectivity, promote sustainable movement to “*revitalise the National Cycle Network to create a network of traffic free paths connecting cities, towns and countryside across Wales*” and “*prioritising walking and cycling for all local travel*” and the creation of “*comprehensive networks of local walking and cycling routes that connect places that people need to get to for everyday purposes*”; and
- Policy 15 – National Forest, which is a commitment by Welsh Government to increase woodland cover “*to help build the resilience of our ecosystems, to secure the delivery of our climate change and decarbonisation aspirations*” and “*to provide places for recreation and well being*”.

In addition to the national policy framework, Future Wales also includes a framework for the development of regional Strategic Development Plans. Swansea is located in the South West region, which also includes Carmarthenshire, Neath Port Talbot, Pembrokeshire, and the Pembrokeshire Coast National Park with Swansea Bay identified as a National Growth Area.

Strategic Development Plans are intended to not only foster collaboration between local authorities within the South West on issues such as GI, but also with adjoining Mid Wales and South East regions. This could include furthering Welsh Government goals to establish a Valleys Regional Park to maximise the potential of the Valleys’ natural and cultural heritage assets (see **Figure 5**).

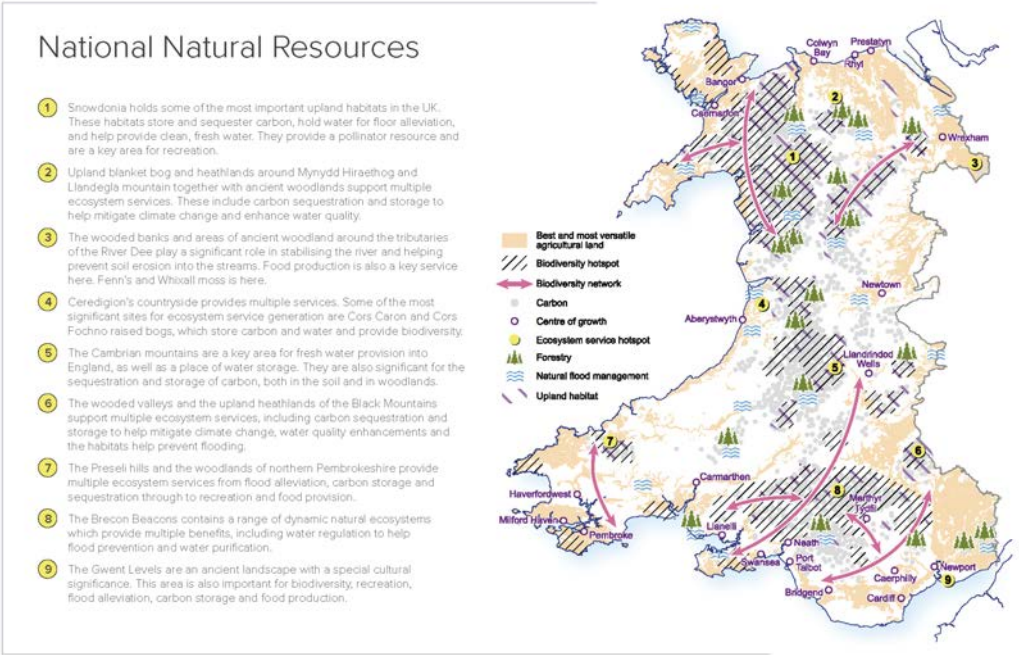


Figure 4: National Natural Resource Themes (source: Future Wales)

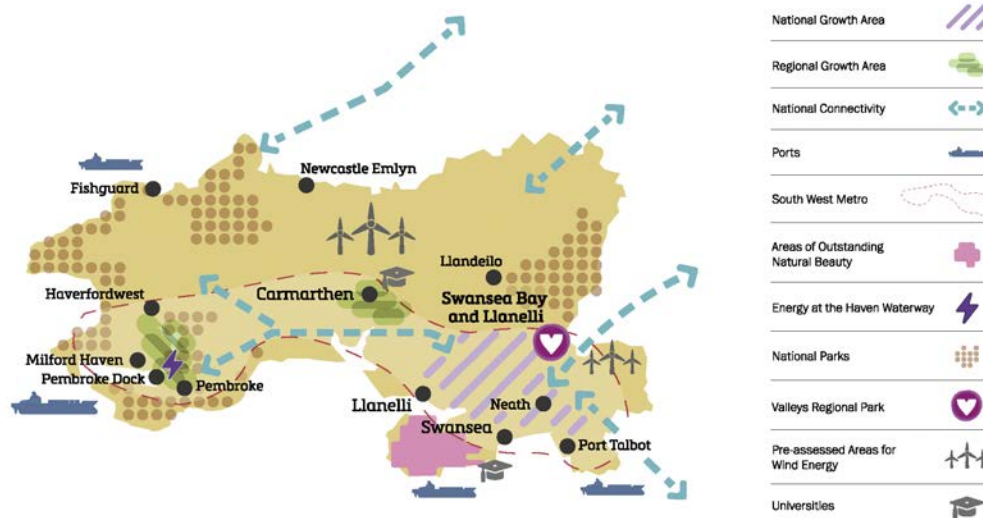


Figure 5: South West Regional Strategic Diagram (source: Future Wales)

2.07c Wellbeing of Future Generations Act

The Wellbeing of Future Generations (Wales) Act 2015 requires public bodies to improve the social, economic, environmental, and cultural wellbeing of Wales through sustainable development. The Act establishes a set of wellbeing goals that provide guidance to public bodies to follow in order to achieve sustainable development.

The Act sets out that to be "*in accordance with the sustainable development principle*", all public bodies must act in a manner which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs. This means that public bodies need to make sure that when making their decisions they take into account the impact they could have on people living their lives in Wales in the future. To achieve the goals of the Act, national indicators have been set, against which progress can be measured, these are illustrated in the coloured wheel to the right. The ecosystem services provided by GI enable progress in line with many of the indicators, such as developing healthier lifestyles and improved wellbeing, better air quality and reducing emissions, as well as improving biodiversity and adapting to climate change.



2.07d Planning Policy Wales

Planning Policy Wales (Edition 12) provides guidance to Local Planning Authorities on what GIAs should comprise and how they should inform the preparation of Local Plans and policies therein. This is provided in paragraphs 6.2.5 to 6.2.10 which make it clear that a GIA is a critical element of the plan preparation process and fundamental to ensuring biodiversity is maintained and enhanced, ecosystem resilience is increased, and improved health and wellbeing outcomes are supported, particularly in those areas where social deprivation is a bigger challenge.

Specifically, PPW states that planning authorities must, as part of adopting a strategic and proactive approach to green infrastructure, biodiversity and ecosystems resilience, produce up to date inventories and maps of existing green infrastructure and ecological assets and networks. PPW notes that GIAs "*should use existing datasets, and the best available information, to develop an integrated map based evidence resource for biodiversity, ecosystem resilience and ecosystem service provision*".

PPW includes details on what the GIAs should do, and be used for, these can be summarised as follows:

- Produce up-to-date inventories and maps of existing green infrastructure and ecological assets and networks;
- Use existing datasets and the best available information to develop an integrated map-based evidence resource for biodiversity, ecosystem resilience, and ecosystem service provision;
- Draw from evidence provided by NRW's Area Statements, Nature Network Maps, Wellbeing Assessments, and locally collected green infrastructure data;
 - Identify landscape, biodiversity, geodiversity, historic and cultural features where GI plays a role;
 - Address the nature emergency by securing a net benefit for biodiversity and enhancing ecosystem resilience;
 - Reduce pollution by identifying green infrastructure/nature-based solutions to address pollution at a catchment scale;
 - Address the climate emergency by identifying multi-functional benefits provided by trees and woodlands;
- Enhance the health and wellbeing of communities by ensuring accessible natural green spaces within reasonable distances;
- Secure the implementation and management of green infrastructure over the long term; and
- Regularly review data and mapped outputs to keep information up to date to inform development management decisions.

The GIA, and the GI Strategy to be developed from it, aims to complete a robust assessment of existing GI and to set out the framework to address the policy requirements of PPW.

2.07e Environment (Wales) Act 2016

The Environment (Wales) Act establishes wide ranging environmental policy and regulation. Part 1 of the Act specifically relates to GI in that it promotes the "*sustainable management of natural resources*" and ways to reduce pressure on our natural resources and build greater resilience in our ecosystems. Part 1(6) states that "*a public authority must seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promotes the resilience of ecosystems, so far as is consistent with the proper exercise of those functions*".

The Act also requires Natural Resources Wales (NRW) to publish Area Statements for the purpose of facilitating the implementation of the National Resources Policy and prepare a regular assessment of the state of natural resources in Wales (SoNaRR).

2.07f Natural Resources Policy (NRP)

The NRP sets out policies to "*improve the way we manage our natural resources – our land, sea and air*" and "*to deliver both economic and environmental objectives*". Three national priorities for the management of natural resources are identified:

- Delivering nature-based solutions. These include support for climate change adaptation and mitigation, flood risk management, improvements to GI and water treatment systems (such as sustainable urban drainage, swales and reed beds), and a variety of land and water management strategies (such as coastal zone management and better soil);
- Increasing renewable energy and resource efficiency by reducing the pressures on natural resources, providing new jobs and market opportunities, and developing a more resource efficient economy; and
- Taking a place-based approach, which focuses on managing natural resources sustainably at a local level to maximise the resource benefits. This priority also notes that Area Statements will play a key role in identifying local opportunities and constraints linked to the national priorities.

The NRP outlines how these priorities work together, will tackle challenges, and realise opportunities provided by our natural resources.

2.07g Second State of Natural Resources Report (SoNaRR2020)

The SoNaRR2020 report, produced by NRW as required by the Environment (Wales) Act, illustrates some of the key challenges, priorities and opportunities for the sustainable management of natural resources and looks to re-imagine how we use our natural assets to address the dual threats from the climate and nature emergencies. The report focuses on the management of natural resources within the eight broad ecosystems, and it identifies three areas for transformative change: the food, energy and transport systems. This report is relevant to the GIA in that it provides “an evidence base for Welsh Ministers to use when preparing or revising the Natural Resources Policy, for NRW when preparing Area Statements, and for local planning authorities when refreshing local development plans”.

2.07h Area Statements

NRW have developed a series of Area Statements covering seven separate parts of the country. Each Area Statement outlines the key challenges facing that locality and opportunities for the sustainable management of natural resources into the future, and informs the ‘place based’ action required under the NRP.

Swansea is part of the South West Wales area for the purposes of NRW's work and is described as a “diverse and varied corner of the country from the rugged uplands to an extensive and beautiful coast”. The South West Wales region also includes Carmarthenshire, Pembrokeshire, and Neath-Port Talbot. The South West Wales Area Statement (SWWAS) identifies the key risks, opportunities and priorities to build the resilience of ecosystems, support sustainable management of the natural resources, and the actions needed to address identified issues. The Area Statement identifies four main themes in the region summarised below.

Reducing health inequalities

The SWWAS notes that in the County of Swansea, the difference in life expectancy of 21.9 years (for males) and 16.3 years (for females) between people living in the most and least deprived areas. It states that “a correlation between higher overall deprivation and low physical health scores can be observed in urban areas and in the Welsh valleys, where the majority of areas in Swansea and Neath Port Talbot score low”. The SWWAS identified three areas of focus related to this theme shown in **Table A**.

Ensuring sustainable land management

The SWWAS notes that South West Wales is predominantly rural, with 56% of the land being made up of ‘enclosed farmland’ and a further 17% woodland. The management of this supports livelihoods and communities and has an effect on the local countryside. The SWWAS identified seven theme focus areas shown in **Table A**.

Reversing the decline of, and enhancing, biodiversity

The SWASS notes the region has a huge variety of habitats that support many species of international importance. Whilst some species are doing well, overall biodiversity is in decline, and without attention, further declines in biodiversity will be seen. The SWWAS goes onto to identify five ways we can use and manage our environment to halt and reverse the decline in biodiversity (**Table A**).

Mitigating and adapting to a changing climate

The SWWAS identified climate change as a cross-cutting issue as it has much in common with the other themes of the Area Statement in that:

- Climate change and biodiversity loss result from the same socio-economic activities and need to be tackled in an integrated way;
- Biodiversity loss itself can fuel climate change. We need to make sure that any activities to reduce greenhouse gases themselves do not result in the decline of nature;
- The ways in which we use and manage our environment can have a dramatic impact on carbon emissions. They can also provide us with opportunities for storing carbon naturally; and
- The effects of climate change present significant risks to our health, particularly vulnerable people.

The SWWAS details what programmes and initiatives have been completed to date, and what next steps NRW are working on to address these wide-ranging challenges. This GIA aims to be consistent and further these efforts by identifying specific objectives for Swansea and support these wider South West Wales region efforts.

Table A. SWWAS FOCUS AREAS
Reducing Health Inequalities
Open green spaces and urban green infrastructure and the direct link between people's good health and being surrounded by the natural environment, which defines and shapes the character of a place, but also delivers multiple benefits for biodiversity, health, and wellbeing.
Recreation activities and use of green and blue active travel. The Active Travel (Wales) Act encourages more people to undertake regular journeys on foot and bicycle. Investment in an active travel infrastructure can result in significant economic benefits. The building of green active travel routes can result in multiple benefits for people and biodiversity.
Protecting the environment for our wellbeing and ensuring our natural resources are of high quality is key to our wellbeing.
Ensuring Sustainable Land Management
Ensure land managers are provided with the right support to create a viable and prosperous rural economy.
People should be better connected to their landscape and be aware of where our food comes from and how it is produced. Swansea was identified as having a high potential directly to connect people to locally grown food.
Best practices of sustainable land management need to be shared across our area to ensure that biodiversity and ecosystems resilience are embedded.
Incentivising farm woodlands and trees in the appropriate place whilst appreciating a variety of habitats aiming for a mixed age structure, diversity of species and habitats.
Give greater attention to hedges and edges to increase diversity by avoiding annual trimming increasing the amount of vegetation between watercourses and fields.
Active management of uplands and commons to promote and incentivise active grazing for biodiversity, carbon storage, wildfire management and retain the historical value.
Reversing the Decline of and Enhancing Biodiversity
Environmental education and communication is key to change people's behaviours and if people know and understand more about their environment, they are more likely to develop long lasting and positive behaviour changes.
New and existing developments should embrace and enhance the natural environment, and that the planning system at the Local Development Plan and individual application stages is a key opportunity to enhance biodiversity.
Rural land use will enhance biodiversity if nature is at the heart of decision-making.
The public sector should better manage the land they own and funding should be more sustainable.
Organisations should take a collaborative approach on key subjects to provide a more cohesive ‘whole area’ approach.

Later in the GIA, these icons will be used to identify objectives and recommendations that align with these four Area Statement Focus Areas.



2.07i Resilient Ecosystem Networks

NRW are in the process of identifying a suite of Resilient Ecosystem Networks (REN) to improve ecosystem resilience of core sites identified within the Ecosystem Network. These networks of habitat link protected sites and other biodiversity hotspots across the wider landscape, providing maximum benefit for biodiversity and wellbeing. Such networks have existing or potential for healthy resilient ecosystems vital for nature recovery, (e.g., providing ecosystem services, allowing the movement of species in response to climate change). Establishing RENs is a long-term goal of NRW, but in the shorter term the work programme focusses on taking a pilot approach to identification of a single REN with an initial area of search centred around Swansea West and Gower (given the draft name of “Gower Gateway”).

2.07j Active Travel (Wales) Act 2013

The Active Travel (Wales) Act aims to make it easier for people to walk and cycle in Wales, specifically to promote walking and cycling as viable modes of transport for everyday journeys such as to the shops, work or college. It places a legal duty upon local authorities in Wales to map, plan for and promote active travel journeys. Swansea produces an ‘Active Travel network Map’ (ATNM) which enables the local authority to develop and maintain a strategic plan of all walking and cycling routes. The map identifies the existing network of walking and cycling routes, and potential future routes which are aspirational. This critical movement component of multi-functional GI has also been considered as part of the GIA to enable more people to walk and cycle in and around Swansea.

2.07k South East Wales Biodiversity Records Centre (SEWBRc) Ecosystem Resilience Mapping

In 2022, Swansea Council engaged with SEWBRc on a mapping project to devise and deliver a methodology for producing high-resolution maps for ecosystem resilience. The aim was to allow Swansea Council to demonstrate that they were taking account of biodiversity, but also the resilience of ecosystems, when making their decisions and thereby helping them achieve their Section 6 duty under the Environment Act (Wales).

SEWBRc identified factors as proxies for measuring and mapping the four key attributes of ecosystem resilience (Diversity, Extent, Condition and Connectivity or DECC). A final set of 11 factors were mapped and combined in an Overall Ecosystem Resilience map (see **Figure 6**) where red/darker areas are high scoring areas (i.e. areas with the highest resilience), and score highest across all the DECC attributes of resilience and the factors mapped for those attributes.

2.07l GI Strategy

The Swansea GI Strategy, to be developed by Swansea Council, and depending on its format could implement the overall GIA vision for sustainable, nature-based solutions and could consider opportunities for specific GI intervention projects (e.g. green roofs, rain gardens, and Sustainable Drainage Systems (SuDS)) over the long term.

2.07m National Landscape/AONB Management Plan

Gower was designated as an Area of Outstanding Natural Beauty (AONB) in 1956 and was the first AONB designated in the UK. The Gower AONB has since been renamed The Gower National Landscape. A statutory 5 year management plan sets out a vision for The Gower National Landscape, laying out aspirations for the future, and the work that will be needed to deliver that vision. The current management plan review has commenced. Swansea Council's Gower National Landscape Team implement the management plan and work in close partnership with those who live, work and manage the land in Gower, and those charged with conserving and enhancing the landscape and wildlife for the nation. The Gower National Landscape Advisory Group provides advice to Swansea Council to guide this work.

2.07n Swansea Local Wellbeing Plan

Swansea's Local Wellbeing Plan looked at a number of different aspects of social, economic, environmental and cultural wellbeing in Swansea, and specifically addresses GI and the urgent challenges facing Swansea's environment. The plan includes a Climate Change and Nature Recovery objective to restore and enhance

biodiversity, tackle the causes, and reduce the impact of climate change. This objective highlights the importance that a thriving natural environment provides to the County, with “*Swansea's network of varied and attractive landscapes and wildlife habitats, including its coastline, uplands, woodlands, rivers and wetlands, and its urban parks and gardens, make it one of the greenest counties in the UK*”. However, the report also recognises that many aspects of the natural environment are in decline and are no longer as resilient to change.

2.07o Swansea Central Area: Regenerating our City for Wellbeing and Wildlife

Jointly published by Swansea Council and NRW, this GI Strategy is designed to bring GI and nature into the Swansea Central Area. It includes five

principles for GI improvements in the area, and a Green Space Factor Tool (GSF) to measure the quality and functionality of green space in development.

2.07p Relevant legislation and the GIA

The prior description highlights the wide variety of policies and plans relating to GI in the County, which have shaped this GIA. Furthermore, a significant amount of work has already been undertaken in relation to GI in Swansea, with a wide variety of plans and initiatives at various stages of completion/study. It is not the intention of this GIA to supersede or replace any of the efforts currently being completed, but rather to ensure that the GIA is consistent and supporting of those efforts in enabling the enhancement and creation of robust GI for the County.

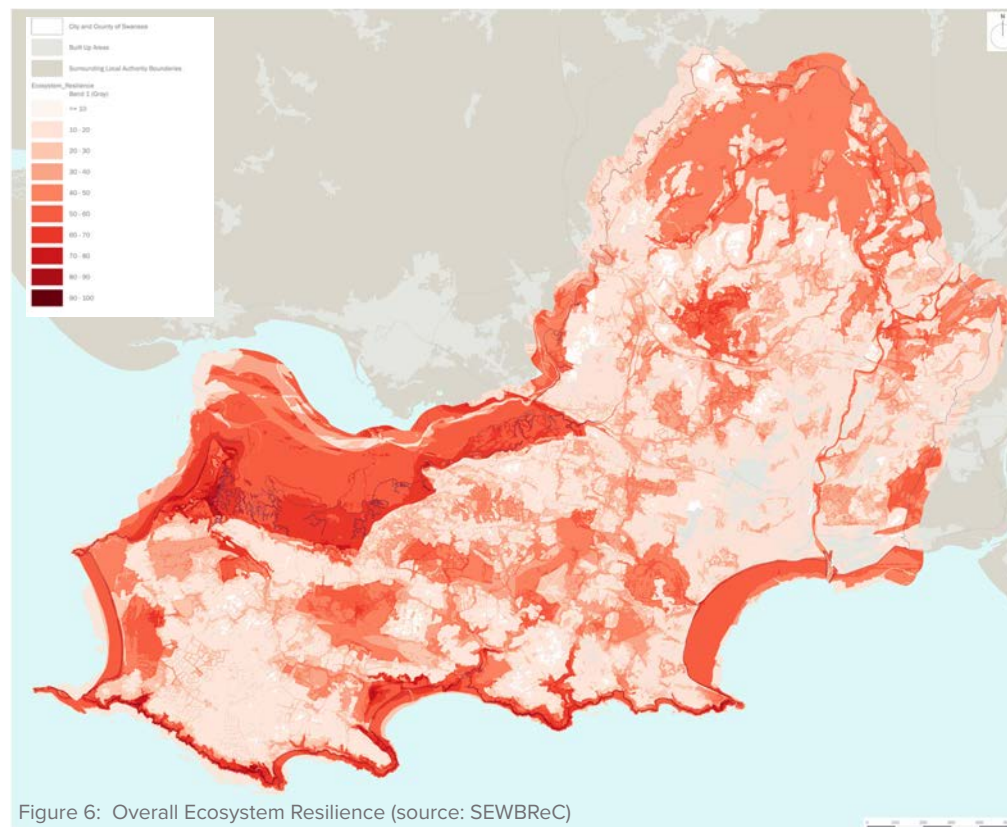


Figure 6: Overall Ecosystem Resilience (source: SEWBRc)

GIA METHODOLOGY



3. GIA METHODOLOGY

3.01 NRW Guidance

The methodology developed for this GIA has been informed by guidance, provided by NRW, which suggests a five step process:

- Step 1: Setting the baseline to establish what GI already exists and the key ecological assets and ecological networks;
- Step 2: Identifying priorities to understand the main socio-economic and environmental challenges that need to be addressed and to what extent can this be done through GI;
- Step 3: Identifying opportunities at a strategic level where the best places exist to improve, or create new GI;
- Step 4: Site assessment, an optional step, which could identify GI on proposed development sites; and
- Step 5: Monitoring and review to see if the desired results are being achieved.

Through the GIA process, additional datasets and resources were identified that augmented those recommended under the NRW guidance. This GIA incorporates Steps 1-3, with Steps 4 being addressed as part of the assessment and subsequent allocation of the GI Strategy and Step 5 as part of an on-going review/monitoring process.

3.02 GIA Methodology Summary

Details of the methodology of this GIA is provided in **Appendix 1**, however, a summary of the major steps is provided below and illustrated in **Figure 7**:

- **Baseline Data Capture.** To establish a robust GI baseline, more than one hundred different datasets were considered and assimilated into a single Geographical Information System (GIS) model. This model enabled a better understanding of the spatial relationship between different GI aspects and assets;
- **Data Grouping.** The data was grouped into themes to allow better understanding and interpretation, especially at the strategic level. These extensive datasets were then reviewed with Swansea Council and other stakeholders, and ground-truthed with fieldwork, building on EDP's existing strong regional knowledge. Throughout this baseline process, it became clear that many GI assets and networks over-lapped one another, and

in many cases already had multiple designations offering some protection. In addition, many datasets were either too coarse or too specific in their level of detail, making interpretation and analysis challenging;

- Thematic maps were then created to allow analysis of the patterns of GI assets in the region (see **Figure 28** through **Figure 35** in **Appendix 2**). From these maps, the County-wide networks, assets and patterns could be more easily understood, and this analysis resulted in the preparation of the Swansea Strategic GI drawing shown in **Figure 9**. This was then used for discussion in consultation with both Swansea Council and NRW;
- Following this initial consultation, EDP prepared an issues and opportunities paper that explored the challenges, conflicts and threats to GI in Swansea across a range of issues. This informed the initial stakeholder engagement and consultation the Council undertook as part of early stakeholder engagement on the LDP2 Vision, Issues and Options;
- EDP also produced a draft vision and objectives report for the Council, which included a series of GI Target Areas (GITAs) and opportunities and challenges for each. These areas were defined by geography and the GI assets located within them, rather than strictly following environmental boundaries such as watersheds or ecosystems. This was to ensure that all the multi-functional aspects of GI are considered from a land use perspective, rather than just ecological or watershed viewpoint. However, the GITAs overlap one another and are not to be considered isolated areas, but instead these geographies are assumed to be connected and have a strong relationship between one another;
- In September 2024, EDP, in partnership with Swansea Council, held an all-day engagement session in order to receive input and comment on the draft vision and objectives. Invitees to the engagement included NRW and a wide-variety of Council officers with knowledge and expertise in local GI resources;
- Following the close of the consultation period on September 30, 2024, EDP revised and collated comments received and prepared the draft GIA; and
- Upon completion of the GIA, data layers of the GI assets will be created (merging individual datasets) and made available to the public by Swansea Council so as to inform future development proposals and Council projects.

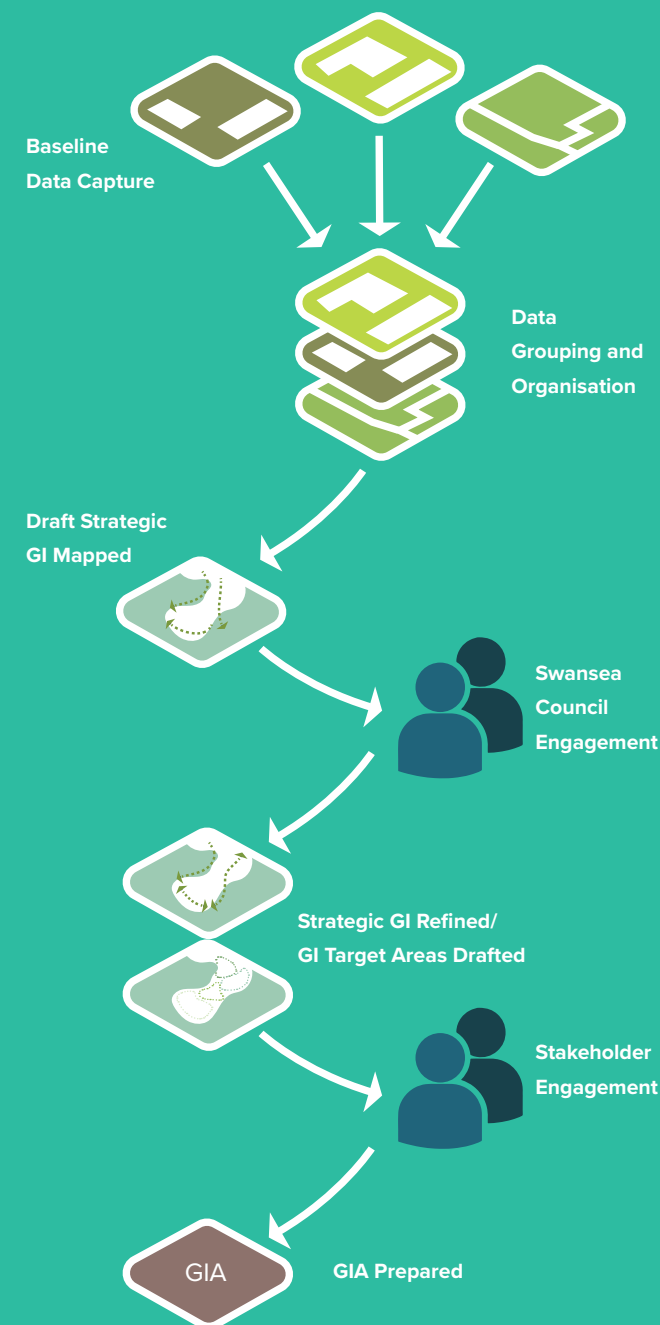


Figure 7: Major Steps in the GIA Methodology

3.03 Strategic GI

At a strategic scale, the County can be divided into three clear areas:

- Gower National Landscape to the west;
- The city and urban fringes in the centre; and
- The open rising landscape of 'Y Mawr' to the north of the M4 corridor.

These areas are distinctly defined through a range of features represented within the GI data analysed. These three character areas are illustrated in **Figure 8**.



Figure 8: Swansea's Major Character Areas

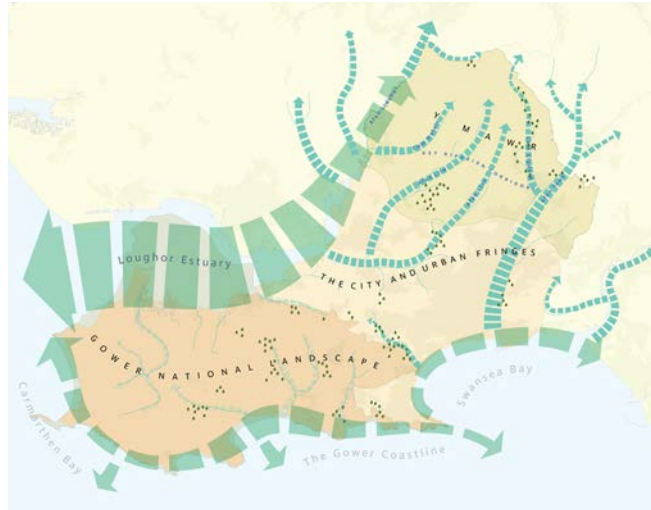


3.03a Essential Gower Connections

A major theme that emerged from the analysis of the GI data, and from several consultations on the GIA, was the risk that the Gower peninsula could become ecologically isolated from the wider GI network in Wales. The settlement within the city and its urban fringes limit the opportunities for movement of wildlife and offer limited GI space within the built environment.

This is particularly acute in the city between the Tawe River valley, M4 corridor and western suburbs of Swansea (Forestfach, Cockett and Sketty), where there is little or no undeveloped land of significant size.

To the west of the city and to the Loughor Estuary there are still larger areas of undeveloped land that could help ensure ecological connectivity to the Gower. The current adopted LDP includes residential-led site allocations in this critical area and therefore it is essential that as these (and other potential future) allocations are brought forward for development that GI connections are enhanced to retain this network connectivity. Future site specific policies should identify GI objectives to be delivered through each development.



3.03b Riparian, Estuarine and Marine Networks

Swansea County is defined by water, surrounded by bays, estuaries and the sea on three sides, and bisected by numerous river corridors that have shaped the geography of the region. The relation with these networks has deeply affected the history, development and culture of the area, from its early maritime roots, through the industrial revolution to today's more recreational focus.

From a GI perspective, these areas are of critical importance to flood control, water quality, and climate change/sea level rise issues and are therefore essential for ecosystem resilience. These water networks are also critical for wildlife and provide vital habitat for native and migrating species, which is highlighted by the number of international and national designations associated with waterbodies and watercourses around the County. Furthermore, many of these same riparian corridors are also well used movement corridors, especially for walking and cycling routes, and also heritage and cultural destinations. As such, the enhancement and retention of these multi-functional GI assets form an important strategic scale consideration.



3.03c Stepping Stones and Ecological Networks

A further major theme that emerged from the baseline work was the need to improve the connectivity of GI throughout the County. In the more urban locations, small pockets of GI exist that have the potential to be enhanced to improve the ecosystem services being realised. Such enhancements have the potential to not only address biodiversity but also to bring health and wellbeing benefits to people living nearby, where access to open space may be more limited. This could include improvements to existing formal/informal open spaces, parks and on highways land to create a series of stepping stones through the built environment.

Although a robust network of designated GI exists on Gower, the baseline analysis also revealed weaker connectivity in some locations that could be enhanced to improve the linkages between important ecological areas on, and adjacent to, the peninsula.

Furthermore, linkages from Y Mawr and through river valleys provide opportunities for connections to neighbouring local authority GI, and potentially beyond to Bannau Brycheiniog National Park.

Figure 9 shows how these strategic scale networks and linkages relate to one another and illustrates opportunities for GI interventions through Swansea and to the surrounding environment.

In the following section, the GI assets across the County and in each of the three main areas are presented together with a more detailed assessment of the strengths, weaknesses, opportunities and threats in each.



Figure 9: Swansea Strategic GI

3.04 Whole County: Issues and Options

One important factor to acknowledge across the whole County is that designation of sites for their value and/or importance in nature conservation terms does not necessarily equal protection. In some instances, designations such as SINC, applied to private land (or unregistered land) do not deliver positive management of the site and/or protection from numerous other environmental harms such as flooding, pollution, anti-social behaviour etc. Such designations also tend to focus on ecological issues only, rather than ensuring full multi-functionality which is the main stay of GI. It is recommended that a review of existing designations is undertaken to identify those which may be in poor condition/under threat and explore options to improve them and their management.

Climate change and the associated threat of sea level rise/increased flooding is a County-wide (indeed nationwide) issue. In some areas the focus will be on protecting the landscape from the effects. In others it may be better (or the only option) to adapt through GI change and enhancement.

Key to GI adaptation, management and enhancement may be new development (of all types). While 'poorly managed' development can have potentially damaging effects on a range of habitats and designated landscapes, sensitively designed development can deliver enhancements. Indeed, with all new development now needing to deliver a Net Benefit for Biodiversity, through PPW12, new development should deliver improvements to GI and its overall management.

In some cases, development in close proximity to a designated site (or even within it in some instances) may be the best vehicle to deliver the funding needed to improve it and long term management which is needed to protect it. In other areas, the intensive development of one site may be mitigated through offsetting

(preferably via a policy mechanism to be included within the LDP2) by enhancement of existing designated sites or through delivery of key objectives of this GIA. It may be the case that the allocation of some sites could be specifically underpinned by their potential to deliver key pieces of GI or GI management, in the same way that allocated sites may have been included previously to deliver 'grey infrastructure' improvements such as new roads. LDP2 policy should be included which facilitates the positive delivery of GI by new development and allocated sites should include specific direction on GI delivery, management and potentially offsetting.

Water is a strong theme running throughout the County. The sea and coast is an obvious strength but watercourses and other waterbodies are also numerous and present significant opportunities for wildlife and people. There is also the potential for better management of certain water bodies to enhance their quality. Wider water quality schemes could also be pursued, working with organisations such as Dwr Cymru Welsh Water (DCWW) and the farming community to seek improvement. Invasive Non-Native Species (INNS) are also a significant problem needing investment to tackle. Opportunities for positive low-impact use of in-land waterways and water bodies, for recreation, education and transport, should also be pursued.

3.04a Potential Opportunities for Consideration

Achieving significant modal transport shift should be a key aspiration in the context of GI, in particular to reduce harms arising from the use of a private car. Opportunities to enhance public transport options and active travel links should be considered. A potential further consideration could be a small-vehicle, demand responsive or 'super-regular' bus service during peak periods to create a loop/loops through Gower, the city and Y Mawr. Electric Bike Hire schemes also have potential, and improved infrastructure across the

County to support them in terms of both routes, secure storage and charging infrastructure could be investigated. The latter could also be made available for private electric bikes, the use of which should be promoted. Subsidy schemes as part of new development may also be worth exploring (with new homeowners receiving vouchers etc. to assist in bike purchase from local suppliers).

Land ownership/control can be a significant obstacle or facilitator of positive GI change and management. Work could be undertaken to understand land ownership and identify areas of high risk and high opportunity. The Council could then work with and support landowners to manage habitats properly and care for their soils.

Tangentially, areas of common land and Open Access Land (OAL) are a publicly accessible resource which is often poorly understood, poorly identified or difficult to access. Further work could be considered to rectify this and improve commons and OAL across the County as vital elements of a multifunctional GI network.

The potential for increasing food production facilities such as allotments and community orchards could also be explored. The incorporation of forager-friendly landscapes across the County is a potentially low cost/high impact approach which benefits people and wildlife. If pursued an educational/information campaign should also be provided to support this.

While the County has relatively limited peatland resource, there is currently no specific protection of this habitat type. In several instances peatland overlaps with other designations, but it is felt policy protection may be warranted in its own right.

The above opportunities could be investigated as part of a future GI Strategy.





3.05 Gower: Issues and Options

Gower is subject to a significant degree of existing protection through its designation as a National Landscape, as well as a significant proportion of its land area being subject to ecological designations at both national and local level.

The primary issue for Gower will be to ensure the continued protection of the whole area and the key designated sites through proper management by landowners. Farming plays a significant role here and the proposed Welsh Government Sustainable Farming Scheme may deliver both positive and negative effects. For instance, increased planting may be beneficial but, if not done sensitively, it could potentially drive inappropriate planting of trees (in both character and habitat terms) in some parts of the peninsula. Opportunities to offset these requirements to appropriate parts of the area should be considered, engaging with Welsh Government in this regard as necessary as this future scheme progresses.

The Gower Management Plan already contains significant direction in relation to objectives for the proper management and enhancement of the National Landscape. These are very broad and delivery can be problematic due to ownership and funding issues. A review of the management plan by the Council has the potential to identify if any barriers exist and, if so, identify potential opportunities to overcome them.

Access is a major issue on Gower, particularly during peak tourism periods. While delivery of better public transport and active travel is likely to be challenging, any feasible improvements in these areas could drive significant benefits and should be explored.

Funding is likely to be key to issues and challenges on Gower, both in terms of enhancing access and improving environmental management. Options such as the proposed Welsh Government Visitor Levy may provide assistance here in the future, but are dependant on future assessment and decisions by the Council whether to implement any future levy. Opportunities to reduce congestion on Gower at peak periods may also benefit from further investigation.

While much of Gower benefits from an outstanding setting and is well provided with both habitats and good ecological connectivity the data sieving exercise has identified an area of north east Gower, broadly south of Llanrhidian, where connectivity between significant designations appears weaker. Further work should be undertaken to establish details of enhancements which could be delivered in this area which would reinforce these connections.

Notable GI Assets in Gower (not exhaustive)

Gower Common	Parkmill Woodlands/Llethrid Valley	Clyne Park, Common and Valley
Oxwich Bay	Penrice Castle	Kilvough
Burry Inlet and Loughor Estuary	Bishopston Valley	Llanmadoc Hill
Whiteford Burrows, Landimore Marsh and Broughton Bay	Gower Coast (incl Rhossili, Oxwich, Caswell, Pwll-du and Llangland Bay)	Clyne Cycle Path and Gowerton-Foreshore-Blackpill-Oakwood Drive Active Travel Routes
Cefn Bryn Common and Arthur's Seat	Three Cliffs and Pennard Valley/Burrows	Mumbles Road Active Travel Route
Rhossili Down	Fairwood, Pengwern and Welshmoor Commons	Gower Way
Llangennith Burrows and Beach	Forest Common and Plantation	Wales Coast Path



White Rock Park and Tawe River



Hafod-Morfa Copperworks



Mayals Road



Swansea City Centre and Swansea Bay (credit Swansea Council)



Swansea East from Kilvey Hill (credit Swansea Council)

3.06 The City and Urban Fringes: Issues and Options

As noted at whole County level, development which meets policy requirements and delivers Net Benefits to Biodiversity should be considered an opportunity, not a threat. Clearly, in and around urban areas this development is likely to largely comprise residential and employment uses. Both of these should deliver suitable onsite GI to meet their own requirements and should be designed to 'knit in' to the wider network, ensuring continuity of connectivity etc.

New SuDS must be designed to provide maximum GI where possible and biodiversity net enhancement benefits. Opportunities to retrofit SuDS into parts of the city where vegetation has been removed and denuded could be explored. Furthermore, similar opportunities may exist to re-green areas of incidental landscape and 're-wild' open spaces, integrating other initiatives, such as the forager-friendly concept, should also be considered.

GI enhancements, with both a focus on biodiversity and recreation/wellbeing, should be prioritised in impoverished areas that have the least current access to GI. There is likely to be a need to educate and engage the community in such areas, and opportunities for training in landscape management etc. should be explored. Existing parks across the urban areas should be studied to seek to maximise GI multi-functionality, and improve community care and engagement.

Where significant settlement occurs pets can create pressure and harm on the environment. This will include predation of wildlife by cats, disturbance of wildlife by dogs and erosion caused by dog walking. Where possible, especially in the context of new development, buffers to sensitive habitats should be created and communities should be educated about the potential impacts.

While Swansea's urban area contains significant greenery, there is some risk that development pressure and poor management leads to the ecological isolation of the Gower peninsula from the wider landscape and ecology of the region. This has to be avoided and so ecological connectivity between Y Mawr and Gower must be protected and enhanced through specific projects within the relevant urban areas.

Notable GI Assets in the City and Urban Fringes (not exhaustive)		
Crymlyn Bog and Pant y Sais	Penllergare Valley Woods	Singleton Park and Sketty Hall
Burry Inlet and Loughor Estuary	Parc Llewelyn	Cwmdonkin Park
Penplas Grasslands	Victoria Park, Swansea	Hafod-Morfa-White Rock Copper Works
Portmead Common	Bishwell Common/Dunvent Brickworks	Fendrod Lake Park
Lliw, Llan, and Tawe River Valleys and Tennant Canal	Kilvey Hill/Community Woodland	Clyne Cycle Path and Gowerton-Grovesend Active Travel Routes
Cadle Heath/Killay Marsh	Mynydd Garn Goch Common	Tawe River-Ynystawe Active Travel Routes
Swansea Vale/ Llansamlet Marshes	Brynlliw Grasslands	Gower Way/Heart of Wales Trail
Rosehill Quarry Nature Reserve	Bryn Y Don Park	Wales Coast Path



Graig Fawr



Upper Lliw Reservoir



Lower Lliw Reservoir



St Illtyd's Walk, Pentwyn Mawr



Banc Darren Fawr/Myndd Y Gwair

3.07 Y Mawr: Issues and Options

Y Mawr, the area of the County lying north of the M4, is undoubtedly the largest (in scale and potential) opportunity to create significant positive GI change within the County. A huge landscape of rivers, hills and 'big skies', Y Mawr presents an opportunity to explore opportunities to better utilize this key resource. A potential opportunity, that would need to be subject to further detailed work on feasibility, is to create a new destination regional landscape park. If feasible, this concept could potentially link to the wider Valleys Regional Park. Dependant on further investigation, it is suggested that consideration be given to developing specific policy (and possibly a new designation) which could drive investment and enhancement through positive support for suitable development. This may include potential opportunities for sustainable energy schemes (ensuring they are sensitive to, and don't dominate, the landscape) and potentially sustainable low-carbon tourism projects.

It is suggested that the Council could work with public organisations such as DCWW to maximise the GI value (and economic value) of their assets and assist with funding of enhancement elsewhere. Engagement of conservation charities such as RSPB, WWT, Wildlife Trusts etc. should also be considered.

With its proximity to Bannau Brecheiniog National Park, and given the scale of Y Mawr, if it is a feasible concept cross boundary opportunities, land ownership and funding options could all be explored and it may be that the landscape park could extend beyond County boundaries.

As with Gower, if increased tourism and activity occurs within Y Mawr (to drive economic investment) as a result of the strategy, alternative forms of access and the promotion of a sustainable access strategy to this area would be key. The concept of a looping small scale demand responsive/frequent bus service may be a key approach here, but enhanced cycle hire and cycle infrastructure will also need consideration.

Notable GI Assets in Y Mawr (not exhaustive)

Penllergaer Forest	Upper and Lower Lliw Reservoirs	Penlle'r Castell
Cefn Forest Stream	Dulais, Lliw, Llan, Clydach, Tawe and Loughor River Valleys	Ring Cairn on Tor Clawdd
Felindre Grasslands	Graig Fawr	Swansea Canal
Waun Garn Wen	Glais Moraine	Tawe River-Ynystawe Active Travel Routes
Banc Darren Fawr/Myndd Y Gwair	Nant Y Crimp	Heart of Wales Trail
Cwm Clydach	Homlean Wood, Clydach	Gower Way/St Illtyd's Walk

3.08 Blended SWOT Analysis

Following the strategic scale work described in the prior sections, and by looking at the finer grained GI data, key themes and topics began to emerge. In many cases, GI assets, features and functions may simultaneously be considered strengths, weaknesses, opportunities and threats due to the potential for them to exist in different conditions across the County. Features that are strong in rural areas may be weak in the city (and vice versa). It is also often the case that weaknesses present opportunities, and some strengths may also present threats (e.g. tourism).

As such, a blended SWOT analysis of GI features was undertaken in order to better understand competing interests and issue effecting GI in Swansea. **Figure 10** illustrates this approach diagrammatically (with further detail provided in **Appendix 3**).

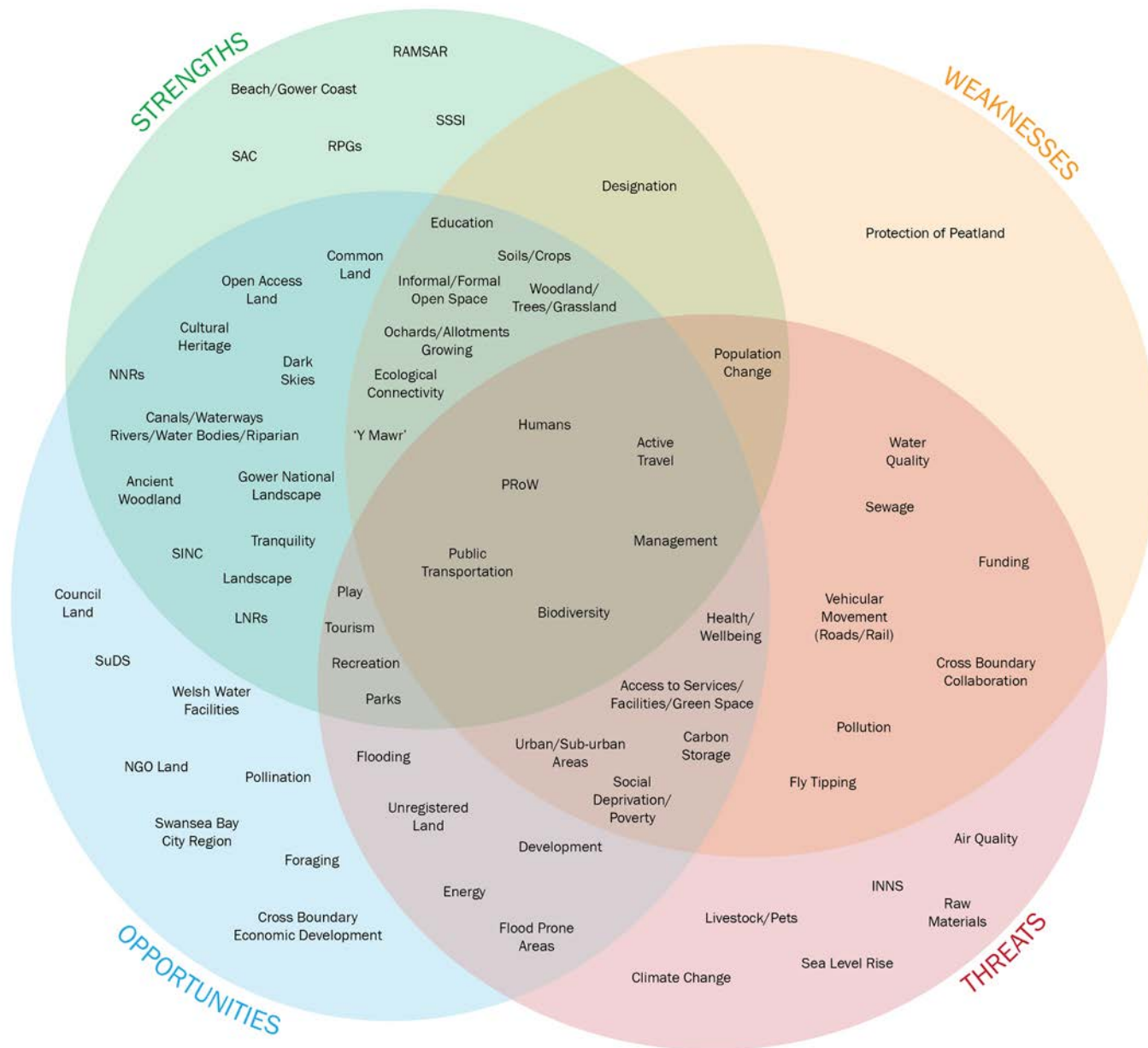


Figure 10: Blended SWOT Analysis

SWANSEA COUNTY-WIDE GI



Upper Lliw Reservoir

4. SWANSEA COUNTY-WIDE GI



Swansea Priorities

4.01 A Vision for GI in Swansea

A County-wide GI network with improvement measures identified to retain, enhance and expand ecosystem services that will deliver an overall Net Benefit for Biodiversity.

Public and private landowners and developers will be encouraged to play a role in ensuring linkages between sensitive habitats for wildlife are made more robust, and that GI enhancements are provided in the most appropriate locations. Enhanced public transport provision serving the County, and providing sustainable access to all areas of the County, should be explored and linked with active travel and walking routes, to encourage healthy, less car-dependant ways of moving around.

Building stronger communities that engage with and value nature, such as through provision of local food production opportunities and re-wilding improvements to parks and incidental open spaces, will improve social cohesion and wellbeing by providing access, maintenance and support for GI in the County.

4.02 GI Objectives to Consider for Future Council Strategies

- Establish policies and projects that enhance, maintain and create a strong GI network across the County. This network will deliver improved ecosystem resilience, ensure the ecological connectedness of Gower, Y Mawr and the urban area, and sustainable connections for the people that live here;
- Support development which delivers Net Benefits to Biodiversity and provides opportunities for suitable onsite GI to meet their own requirements and connect/enhance the wider network;
- Where GI enhancements provided on-site by development are constrained and/or sub-optimal, investigate the potential for creating an offsetting mechanism through policy that can focus off-site GI enhancements at the most important/critical locations, driving the delivery of identified objectives within the GI Target Areas;
- Establish a process to review existing conditions, management regimes and threats to existing designated GI assets especially in regard to climate change impacts and ecosystem resilience. Seek funding opportunities to enable resources to manage invasive species, habitat decline and destructive anti-social behaviours, particularly on unregistered land;

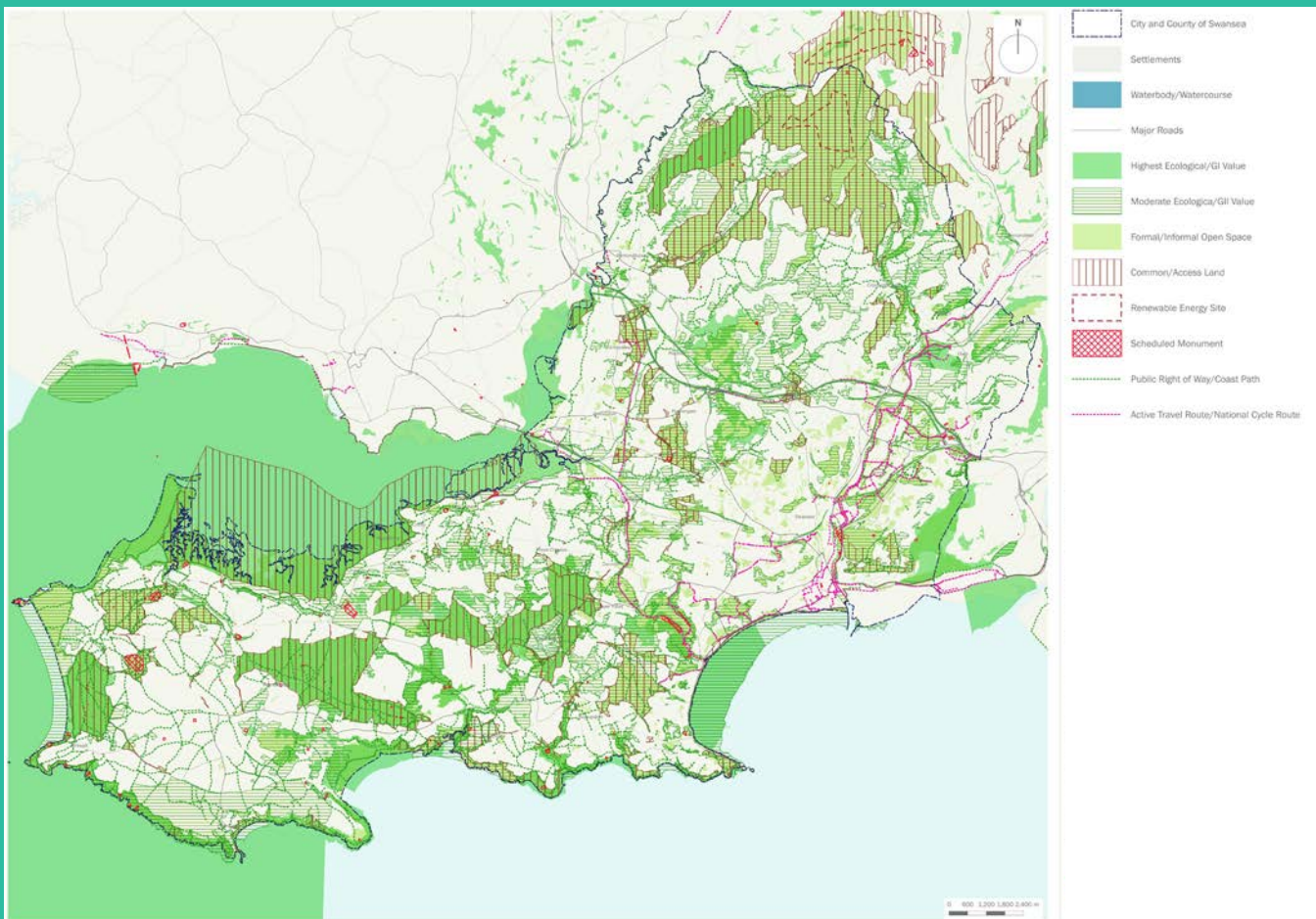
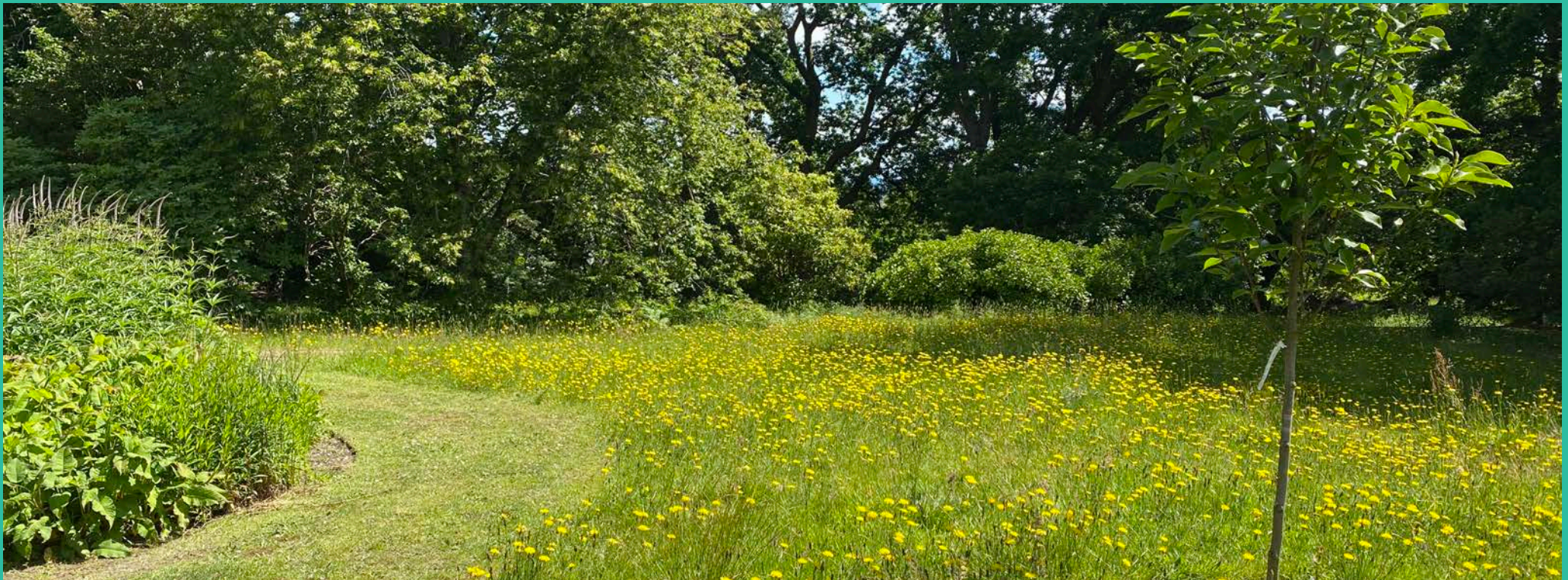


Figure 11: Swansea GI



- Review of Swansea Local Authority owned land/property with a view to identifying opportunities for buffering or linking GI across the County, and to contribute toward GI Target Area objective delivery;
- Deliver Gower AONB/National Landscape Management Plan actions and projects, through funding and prioritisation;
- Deliver improvements to water quality and condition (land and sea) by prioritising multi-functional SuDS, drainage and landscaping within public and private schemes. Enhance access to water (on and around) for people and wildlife where appropriate, and implement effective control measures for invasive species;
- Creation of new/enhanced cycle and e-cycle network provision to include hire facilities, charging points and secure storage;
- Consider the feasibility of the creation of a new demand responsive bus network loop(s) across the whole County to facilitate access to the three main areas of Swansea (Gower, City, and Y Mawr). Create a sustainable, frequent and reliable service that utilises the latest technology, and is integrated with train and bicycle infrastructure to support multi-functional GI across the County;
- Consider the GI Assessment as part of the LDP2 Candidate Sites Assessment process with relevant policies setting out development requirements as to how future planning applications will: a) avoid or minimise impacts on the GI within and surrounding the allocation and, b) how they can/should/will contribute to the delivery of the County wide objectives, key GI projects and Net Benefit for Biodiversity;
- Maintain/enhance tranquillity corridors and Gower National Landscape Dark Night Skies designation through LDP process;
- Include LDP2 policy criteria requiring the protection of peatlands in line with PPW;
- Explore opportunities, primarily within Council controlled land and in the context of new development proposals, to integrate allotments, orchards, and forager friendly landscapes to boost community food production and encourage public engagement with and appreciation of the landscape around them;
- Explore opportunities relating to the Sustainable Farming Scheme that would allow farms to trade requirements for on-site woodland, or other GI delivery, to locations where woodland planting is appropriate/desired and where long-term benefits to GI and biodiversity can be realised; and
- Provide GI advisory services to support landowners in delivery of GI enhancement on their land (and through this the delivery of the GI strategy and GI Target Area objectives).



GI TARGET AREAS



View of Swansea Bay from Clyne Gardens

5. GI TARGET AREAS

For the purposes of the GIA, the County has been divided into six GITAs as shown in **Figure 12**. The GITAs are loosely defined and overlap with adjacent GITAs. These areas were initially defined based on geographies where priorities for GI enhancement or concentrations of GI assets were located. This approach, rather than based on other boundaries such as habitats or watersheds, was felt to be more appropriate when identifying areas of multi-functional GI. This is because GI assets include cultural or transportation related features that do not relate or follow environmental boundaries. As such, the GITAs do cross watersheds, ecological designations and topography but that is not intended to mean that the functional connections and links between these GI systems should be ignored.

The boundaries of the GITAs have been refined through the engagement process, and either follow identifiable features or concentrations of GI assets, but also include buffers to these areas to allow consideration of linkages to GI in adjacent GITAs.

In the following section, potential future opportunities to enhance GI for each of the six GITAs are presented, along with potential objectives, opportunities and challenges for Swansea County. Identified GI priorities for each GITA are illustrated, together with how they align with the SWWAS and support ecosystem resilience in the area. For clarity, the drawings showing the GITA include GI related information in the area for reference. This data has been grouped as follows:

- Highest Ecological/GI Value Areas include RAMSAR Wetlands, Special Areas of Conservation (SAC), Special Protection Areas (SPA), National Nature Reserves, Sites of Special Scientific Interest (SSSI), Ancient Woodlands and Peatlands; and
- Moderate Ecological/GI Value Areas include Local Nature Reserves, Sites of Importance for Nature Conservation (SINC), Registered Parks and Gardens, and Regionally Important Geodiversity Sites (RIGS).

The GITAs set an ambitious vision and potential opportunities for the respective areas to deliver an enhancement to connectivity across the County. To facilitate this a suite of objectives have been identified, with their deliverability to be considered through the range of relevant Council strategies subject to Council priorities and available resources.

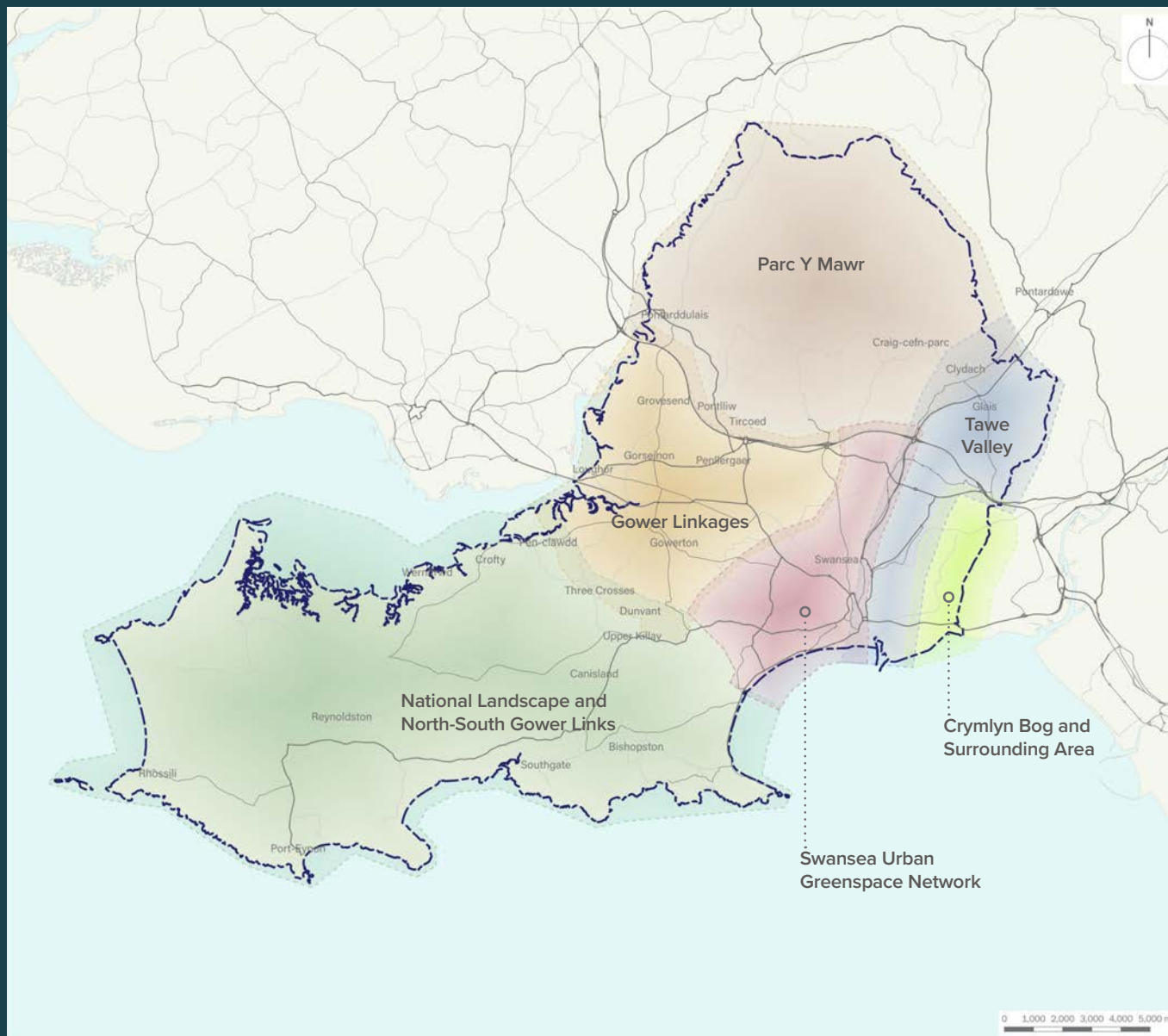


Figure 12: GI Target Areas

5.01 Parc Y Mawr

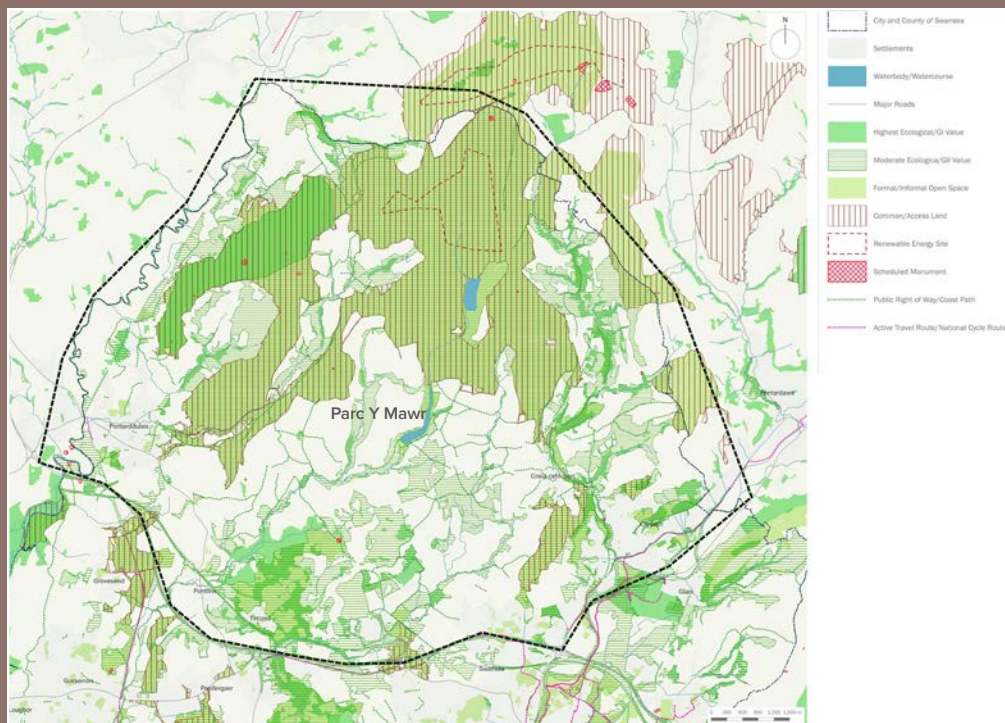


Figure 13: Parc Y Mawr Target Area

5.01a Objectives

- Investigate the feasibility of creating a regional scale destination landscape park (possibly to contribute to the Valleys Regional Park project);
- Development in this area could largely be limited to sustainable development, likely to focus on eco-tourism and sustainable energy projects where appropriate;
- Development of strategic sites (e.g. housing, commercial, industrial) where included in the area and if feasible, could further support wider objectives for the park through direct onsite contribution, mitigation and/or offsetting;
- Careful consideration of access to Parc Y Mawr will be required, primarily through active and public transport modes and may require specific tourism provision.

Priorities



5.01b Contribution to Ecosystem Resilience

The northern half of Parc Y Mawr, further from existing settlements and key transport routes, displays greater existing ecosystems resilience supported by the presence of significant common and open access land. A further strong point of ecosystem resilience lies at the southern edge of the GITA, in the vicinity of Pontlliw and Tircoed where Penllergaer Forest provides significant habitat and amenity opportunity. Between these areas lies a band of lower resilience, around Clydach, Craig-Cefn-Parc, Pontarddulais and Felindre where there is scope for enhancement to be driven by investment and available funding.

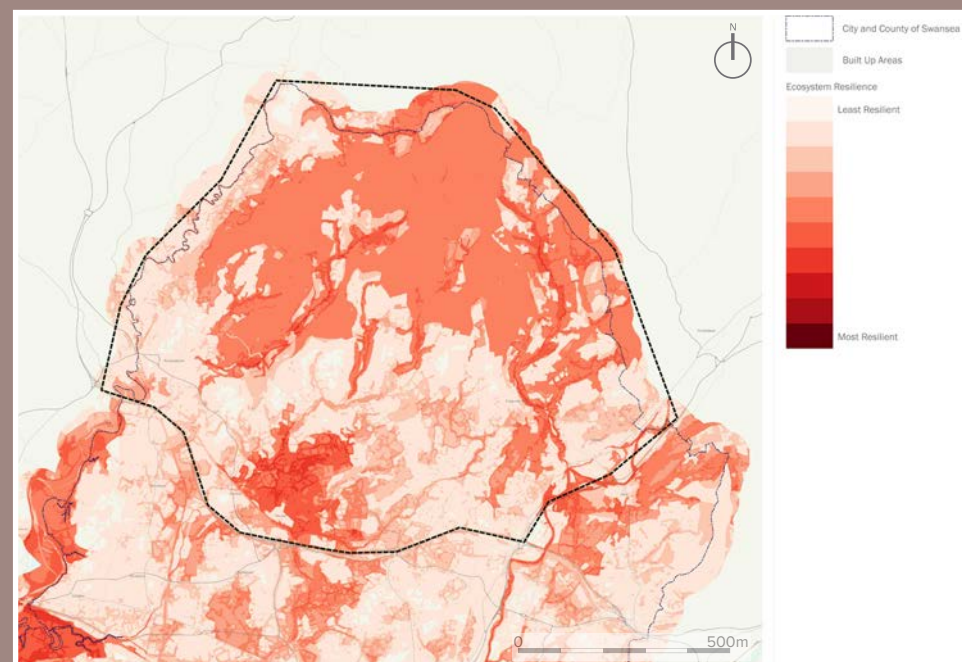


Figure 14: Parc Y Mawr Ecosystem Resilience

Contribution to Area Statement

The creation of Parc Y Mawr and the enhancement of the GI within it could significantly contribute to the Focus Areas of the South West Wales Area Statement. Prioritising this landscape for biodiversity and public enjoyment and engagement with the landscape could, in particular, assist in reducing health inequalities in the region, support a prosperous rural economy and encourage active management of the uplands and commons.



5.02 Gower Linkages

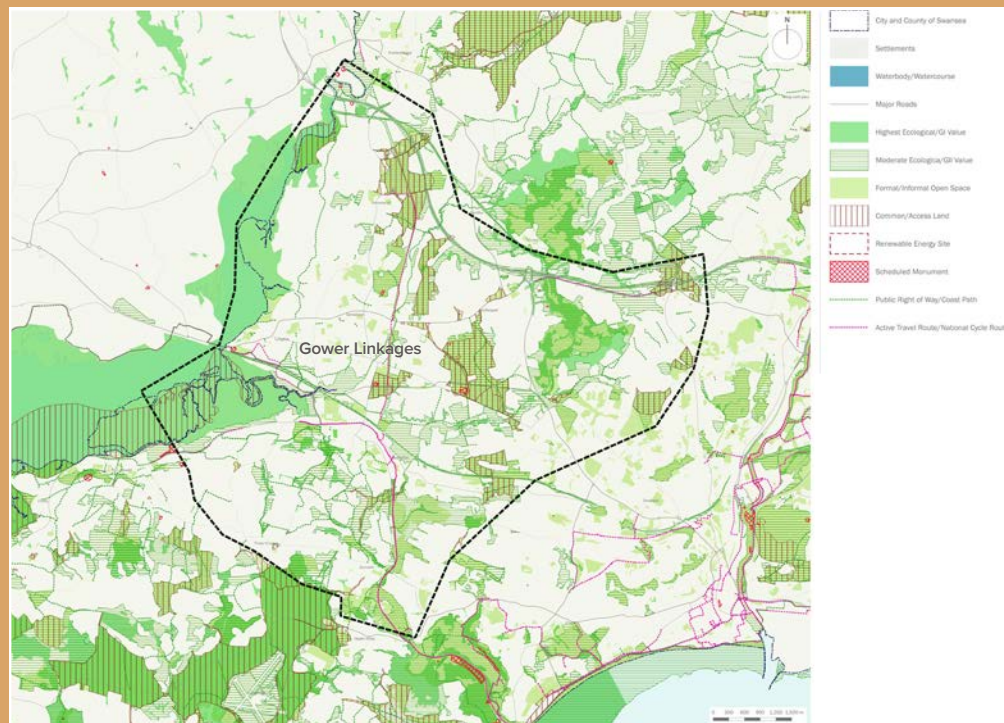


Figure 15: Gower Linkages Target Area

5.02a Objectives

- Ensure that critical ecological connections between Gower and nationally important biodiversity corridors are retained, enhanced and augmented with new stronger connections;
- Consider where existing and new bicycle/pedestrian connections through the area could, where possible, provide space and wildlife friendly landscaping to support connectivity and biodiversity;
- Riparian corridors, particularly those that are subject to flooding, and existing woodlands, offer excellent opportunities to enhance connectivity and this opportunity could be maximised, particularly where land is owned by the local authority or not appropriate for development;
- Biodiversity enhancements and nature-based initiatives in this area could include tree planting, habitat creation and wetland management to buffer existing designated ecology sites and expand ecosystem services; and
- Consider aligning any enhancement initiatives with pilot REN projects in this area being pursued by NRW SWWAS.

Priorities



5.02b Contribution to Ecosystem Resilience

The Gower Linkages GITA currently has relatively low Ecosystem Resilience and it is imperative that this situation is halted and reversed. There are pockets of higher resilience identified within the data and these need to be reinforced and linked to ensure robust wildlife connectivity across the County.

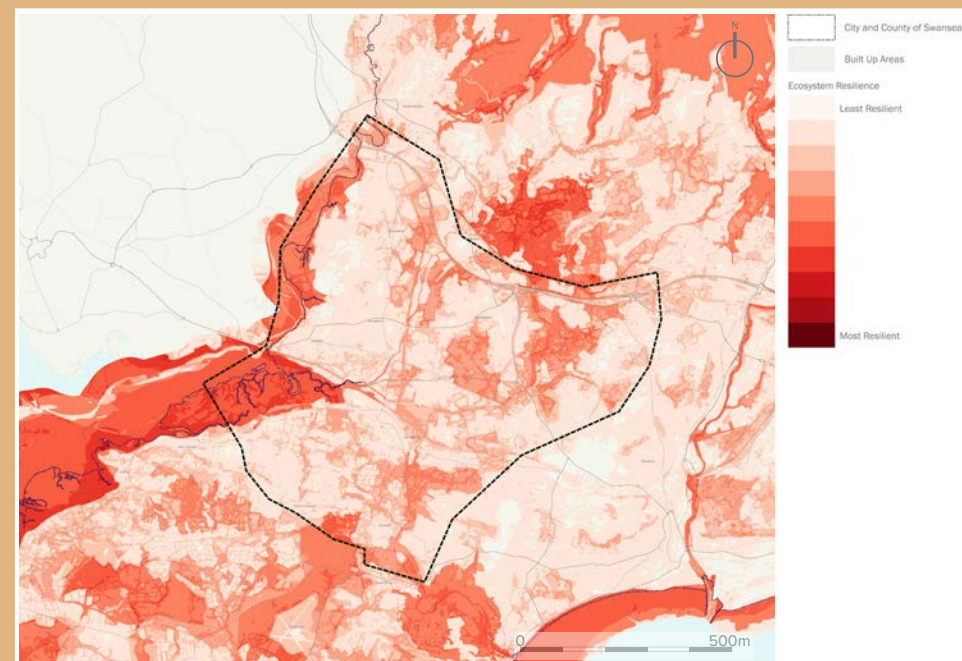


Figure 16: Gower Linkages Ecosystem Resilience

Contribution to Area Statement

The Gower Linkages GITA seeks to contribute across the themes of the Area Statement but has a particular focus on 'ensuring sustainable land management' and 'reversing the decline of, and enhancing, biodiversity'. The objectives of the GITA seek to ensure Gower, and indeed all of Swansea, remains ecologically connected and this will require changed approaches to land management and enhancements to biodiversity.





5.03 Swansea Urban Greenspace Network

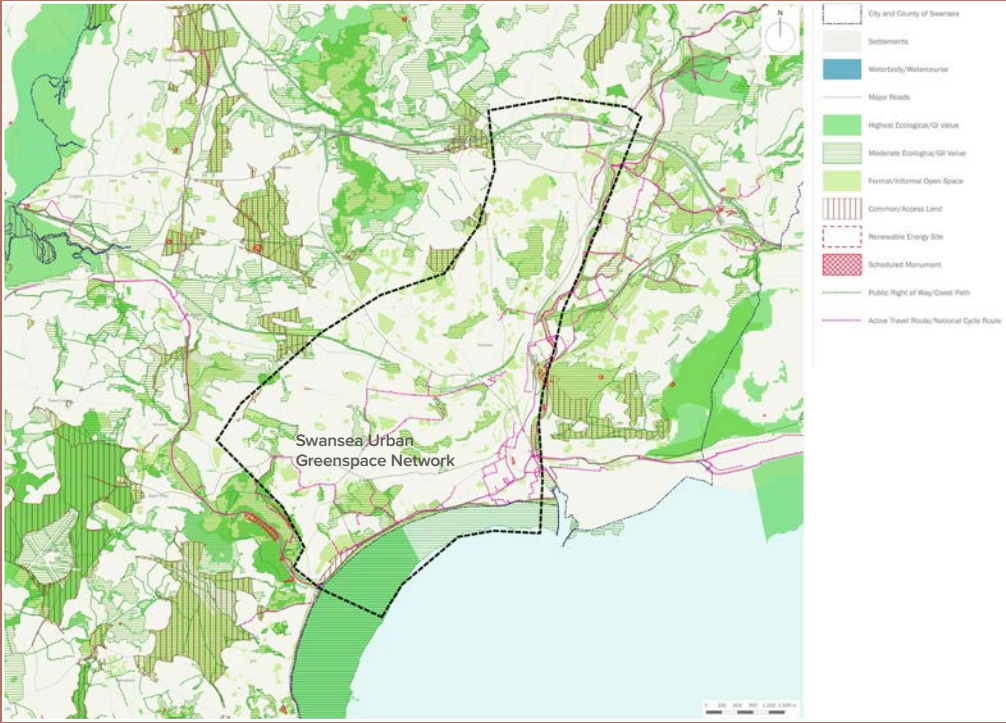


Figure 17: Swansea Urban Greenspace Network Target Area

5.03a Objectives

- Explore the creation of an enhanced and well-recognised network of urban green spaces, which deliver specific GI objectives with regard to ecosystem services such as play, food production, and amenity in some of the least resilient areas of Swansea;
- If feasible, this project could focus on open spaces and highways land controlled by the Council and could involve an in-depth consideration of their current condition, threats, opportunities and constraints;
- Enhancements could be driven based on local community need and input to ensure maximum local value is delivered;
- Biodiversity enhancement may be sought but may not be the primary objective or driver as GI initiatives here could be targeted at human wellbeing, health and community cohesion; and
- Where biodiversity enhancement is delivered, this could have a particular focus on education and community engagement.

5.03b Contribution to Ecosystem Resilience

The Urban Area is the largest, weakest area of Ecosystem Resilience in the County. However, it perhaps offers some of the best opportunities to enhance this through a combination of Council controlled land, potential income streams from development and commercial organisations, and a wealth of latent community energy and capacity to be engaged with the right leadership. Concerted effort across the GITA could significantly improve its resilience over time.

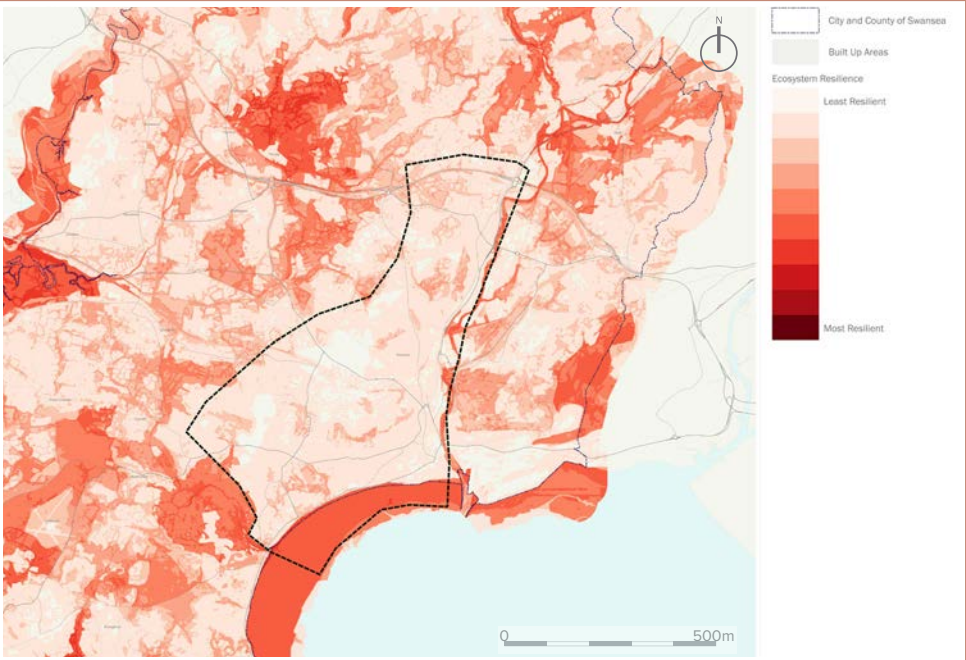


Figure 18: Swansea Urban Greenspace Network Ecosystem Resilience

Contribution to Area Statement

This GITA will contribute to all 4 themes of the Area Statement. In particular, the objectives could assist in reducing health inequalities through better access to better quality GI. The GITA could also offer significant opportunities for community engagement with the landscape and better understanding of it through education and involvement. Opportunities for food production, biodiversity enhancement and climate change adaptation could also be realised.





5.04 Crymlyn Bog and Surrounding Area

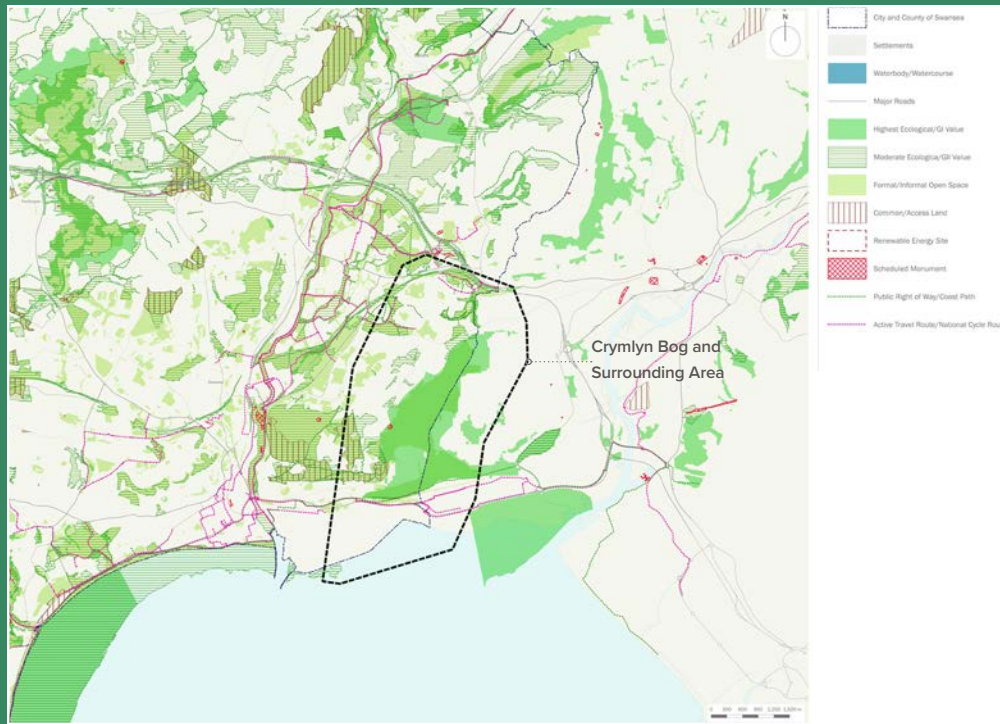


Figure 19: Crymlyn Bog and Surrounding Area Target Area

5.04a Objectives

- Aim to ensure the future protection of Crymlyn Bog National Nature Reserve (NNR) (and the adjacent Pant y Sais NNR) as one of the most important wetland sites in Europe;
- Protect against potential negative impacts from adjacent uses and developments by exploring nature-based initiatives to buffer habitat around the NNR wetlands through re-wilding and habitat creation, and to allow adaptation to climate change and potential sea-level rise;
- Raise awareness of the area's importance for biodiversity and rare-species by expanding education and information and consider providing improved facilities for visitors; and
- Consider partnering with neighbouring Neath-Port Talbot to explore compatible re-use of nearby industrial land to provide balanced and sustainable access to the area from nearby residential areas, maximising GI benefits.

5.04b Contribution to Ecosystem Resilience

Crymlyn Bog is a 'hotspot' of Ecosystem Resilience but is surrounded by weaker areas to the west and north. To the south, stronger resilience occurs on the coast but there is a 'missing link' in the vicinity of the University Campus which could be prioritised for improvement in respect to habitat connectivity.



Figure 20: Crymlyn Bog and Surrounding Area Ecosystem Resilience

Contribution to Area Statement

The focus of this GITA, in particular, is on the 'reversing the decline of, and enhancing, biodiversity' theme of the South West Wales Area Statement. However, there are opportunities here to also contribute to reducing health inequalities through better access to GI across the GITA and to ensuring sustainable land management with better knowledge sharing across those responsible.





5.05 Tawe Valley

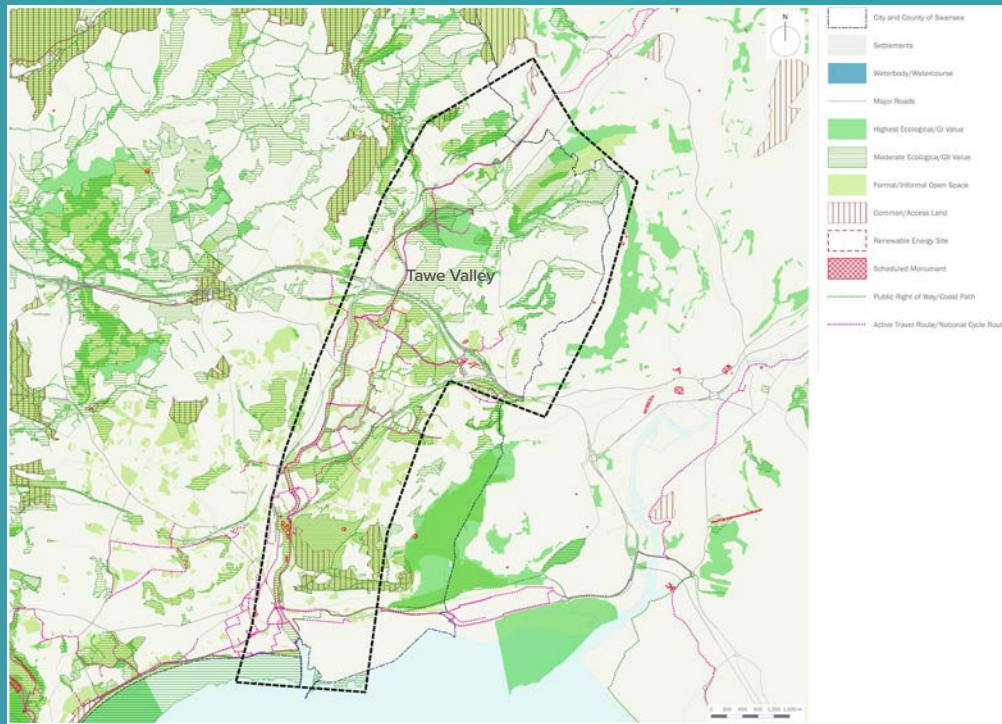


Figure 21: Tawe Valley GI Target Area

5.05a Objectives

- Explore ways to ensure that GI in this area is truly multi-functional by exploring nature-based solutions to flooding, contamination, pollution and climate change on both existing and new areas of GI;
- Reinforce and protect existing GI where possible and enhance established riparian, flood control, open space and movement networks along the Tawe River valley to support redevelopment initiatives and highlight the industrial heritage along the river;
- Continue to provide economic development through GI improvements that encourage visitors and new residents to the area; and
- Where feasible, provide a range of connected open spaces, water-based activities, and heritage/cultural destinations, that can be accessed without private vehicles and can take advantage of existing and future pedestrian, bicycle, and public transportation facilities (including opportunities provided by the South Wales METRO).

5.05b Contribution to Ecosystem Resilience

While the Tawe itself is identified as a stronger area of Ecosystem Resilience, the area around it, especially to the west, is generally much weaker, more aligned with the remainder of the urban core. Resilience improves to the east of the river but there is capacity for improvement across the GITA which should be pursued.

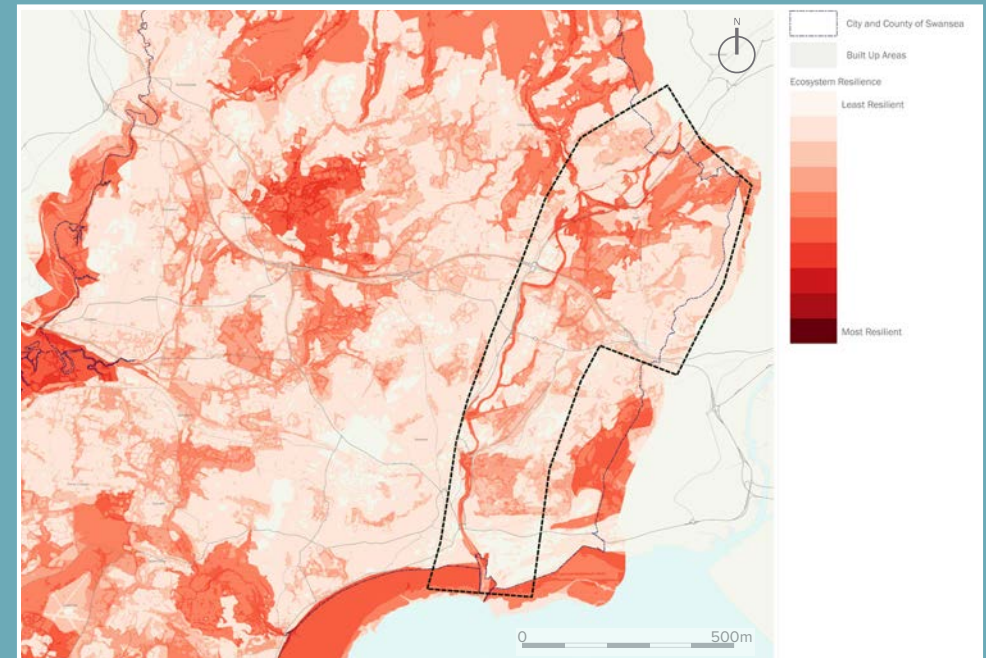


Figure 22: Tawe Valley Ecosystem Resilience

Contribution to Area Statement

The Tawe Valley GITA objectives could deliver a range of benefits which closely align with the South West Wales Area Statement themes. In particular, given the urban nature of much of this target area, better protected and enhanced GI could deliver reduced health inequalities, improved access to, and use of, active travel modes and offer more opportunities for education, engagement and collaboration in, with and around the GI, by the local community.





5.06 National Landscape and North-South Gower Links

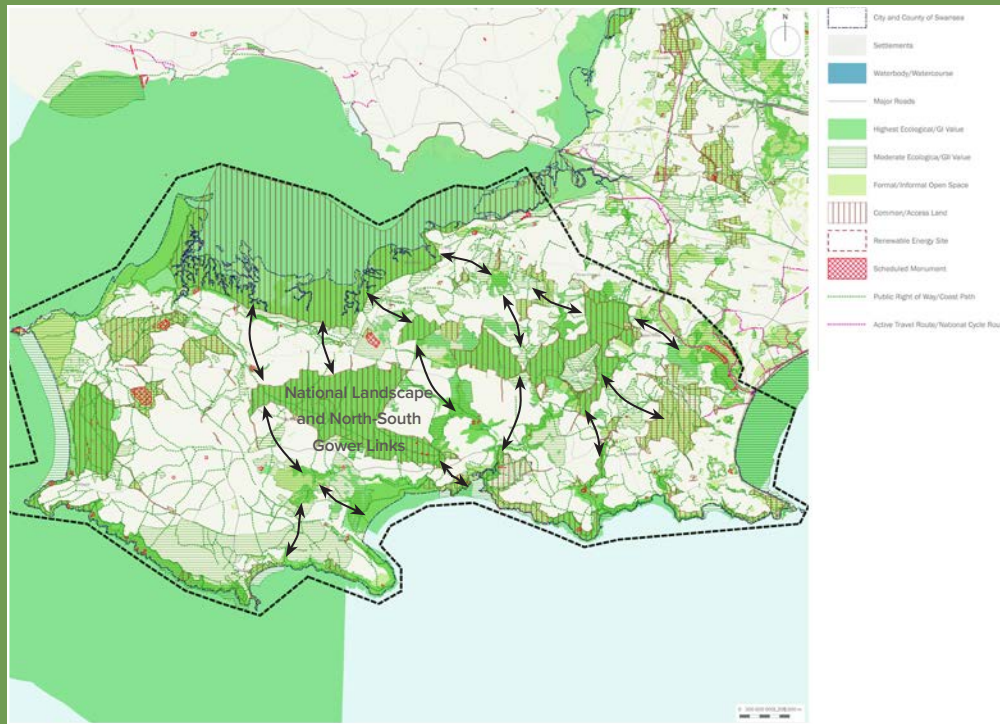


Figure 23: National Landscape and North-South Gower Links Target Area

5.06a Objectives

- Where possible, strengthen the existing GI and ecological habitats across the Gower National Landscape to ensure wildlife, heritage and recreational value is maintained for future generations;
- Deliver Gower Management Plan policy by targeting funding and prioritising most important objectives;
- Gower has a rich and diverse range of habitats, many of which are already ecologically designated. However, linkages between these sites could be enhanced or created to allow wildlife connectivity between them, and to the Burry Inlet/Loughor Estuary, Swansea Bay, and Carmarthen Bay;
- Habitat restoration and expansion in this area could focus on publicly/Council-owned property, appropriate to the location; and
- To ensure that development or agriculture does not isolate GI resources, public-private collaborations could enable improved connections to be delivered, particularly along the north Gower coast.

5.06b Contribution to Ecosystem Resilience

Gower offers a mosaic of habitats of greater resilience, interspersed by, and sometimes isolated by, lower resilience areas. The focus of the objectives of this GITA are to protect the existing strong points and better connect these to improve the overall resilience of the network as a whole. In this regard, the objectives also support the aspirations of NRW's REN project.

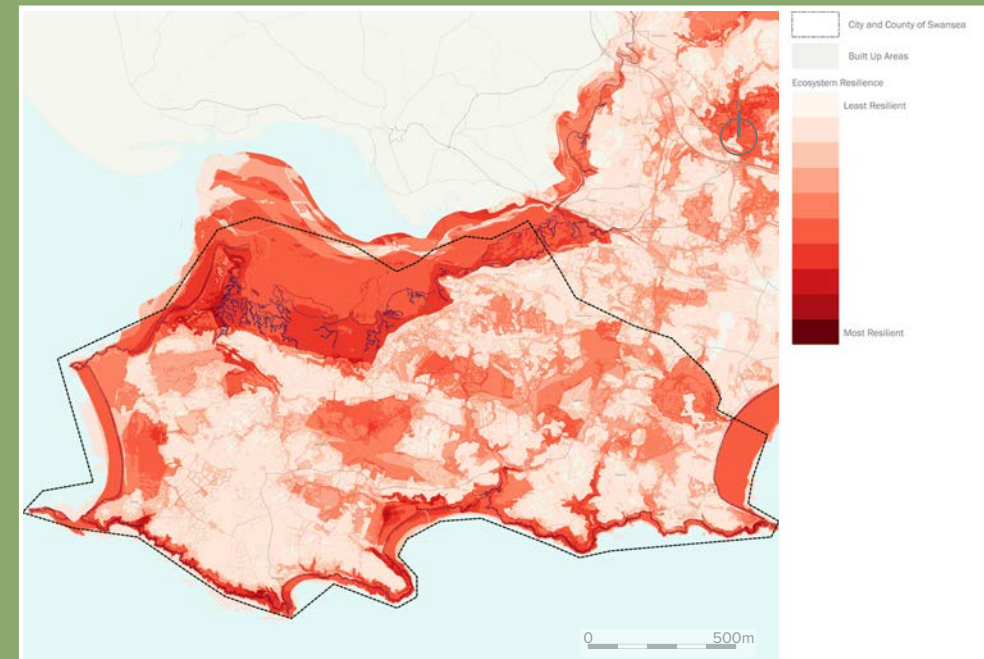


Figure 24: National Landscape and North-South Gower Links Ecosystem Resilience

Contribution to Area Statement

"Ensuring sustainable land management" is at the heart of the objectives of the GITA objectives, closely followed here by "Reversing the decline of, and enhancing, biodiversity". The National Landscape is already a significant GI resource but its attractiveness generates pressure from people and associated traffic, disturbance and pollution. At the same time, agriculture is both a necessary and valuable activity across the peninsula, which manages a significant proportion of the landscape but which, in places, could benefit from more sustainable practices and enable better connectivity between GI assets.



CONCLUSIONS AND RECOMMENDATIONS



6. CONCLUSIONS AND RECOMMENDATIONS

PPW sets out a clear set of requirements which GIAs must address:

- The identification of existing safeguarded areas in which GI plays a part;
- The nature emergency, how net benefit for biodiversity will be achieved and ecosystem resilience enhanced;
- Nature based solutions to the reduction of pollution;
- The climate emergency through provision of multifunctional benefits;
- Natural flood management and sustainable drainage schemes;
- Health and wellbeing of communities through access to GI;
- The implementation of GI through the planning system; and
- The management, protection and creation of a network of designated sites which act as 'stepping stones' and 'corridors' for wildlife.

NRW, in their document "Green Infrastructure Assessments: A guide to key Natural Resources Wales' datasets and how to use them as part of a Green Infrastructure Assessment", also set out the issues and opportunities that NRW would like to see being considered as part of a GIA. This document also provides a summary of those key issues which NRW consider GI can help with.

This GIA has been prepared in line with PPW and informed by the NRW guidance and has 3 key purposes (set out in more detail on **page 3**):

- To inform the LDP2;
- To set the baseline and starting point for a Swansea wide GI Strategy; and
- To provide a source of information and guidance to developers.



6.01 Headline Findings

Swansea is unique and diverse with over 21,000 hectares of GI networks and assets, including over 11,000 hectares of formal and informal public open space.

The County accommodates a range of designated landscapes and GI features including 52 SSSIs and 1,721 hectares of ancient woodland. The County also contains numerous ecologically designated sites including SACs, Ramsar sites, SPAs, National/ local nature reserves and SINC.

Designation, while important, does not in itself provide protection. Specific direct action and long term management is required to ensure GI is protected in the long term and this, in turn, requires funding and resources which are often in short supply.

Swansea, and particularly the Gower National Landscape, is renowned for its beauty and attractiveness. It receives around 4 million visitors per annum.

These GI resources are, however, under threat from a combination of factors ranging from local (such as tourism pressure) to global (such as climate change).

Significant legislation, policy and guidance already exists at both local and national level. This seeks to protect and reinforce GI, associated ecosystem resilience, and the vital ecosystem services which the natural world provides.

At a strategic, County-wide scale, Swansea divides into three distinct areas – Y Mawr to the north of the M4 motorway, Gower on the peninsula to the west, and the city and its urban fringes sandwiched in between.

Criss-crossing these three areas are a range of strategic GI corridors providing connectivity (or potential connectivity) for people and wildlife.

These corridors vary in their quality, condition, continuity and robustness but all are important to the resilience of Swansea's ecosystems and to ensuring the public get maximum benefit from its GI.

The GI connectivity between Gower and Y Mawr (and to the wider GI network of the nation) are at the greatest risk due to the location of the urban area and the pressure to develop within and around this. It is imperative that Gower does not become ecologically isolated.

While poorly located or poorly designed development can have significant detrimental effects on GI, well considered development, in the right place, can bring significant positive effects. These may include the provision of new GI on site, the retention and long term management of existing GI, or could provide funding and resources for protection and management of existing GI elsewhere in the County.

Similarly, Swansea is home to a vast array of diverse commercial organisations, the activities of which can be detrimental (through pollution etc.) but also represent a significant potential resource and investment opportunity.

While transport issues may not fall readily under the GI 'banner', good public transport and active travel networks are a vital aspect of protecting and enjoying the landscapes of Swansea. Highways and transportation proposals (strategic and local) should consider the findings of this report.

While Gower is well known and well understood, and the city is likewise appreciated for all that it offers its visitors and residents alike, Y Mawr was identified as a largely under-appreciated resource. With expansive rolling landscapes and breathtaking views across the entire region, this is an untapped opportunity waiting to be discovered.

This GIA has sub-divided the whole County into six GI Target Areas (GITAs):

- Parc Y Mawr;
- Gower Linkages;
- Tawe Valley;
- Crymlyn Bog and Surrounding Area;
- Swansea Urban Greenspace Network; and
- National Landscape and North-South Gower Links.

These GITAs are defined based on common underlying objectives which can be applied across their area but should be considered 'fuzzy' at their edges, overlapping with adjacent GITAs and their associated objectives.

The GITAs are suggested as a useful approach to focus and prioritise efforts to drive the necessary GI change and enhancement.

6.02 Recommendations and Next Steps – Application of this GIA

This GIA identifies key objectives for both the County as a whole and for each of the six individual GITAs. These are set out in **Section 4 and Section 5** of this document and should be considered in full, and in the context of the supporting information.

The objectives act as a to-do list and, at this stage, are not prioritised. Given they relate to a County-scale landscape some may appear overwhelmingly large, others may feel unmanageably complex. It is considered important that real, tangible change is delivered and efforts to address these should be made. This visible outcome will then catalyse activity and help deliver the objectives as a whole. On this basis, all users of this GIA, with the power to assist in delivering its objectives, should progress achievable outcomes where feasible and then focus on the removal of barriers to others.

The two critical audiences of this GIA are the Council (in the preparation of LDP2 and the development of its Green Infrastructure Strategy and its daily execution of its wider duties) and developers (putting forward developments for planning consent or promoting sites for allocation). Specific recommendations for each are set out below.

Other stakeholders e.g. community groups, local commercial organisations, may find the GIA useful and all efforts to deliver its objectives are welcomed. Anyone seeking to support this in any way should contact the Council via the planning department to discuss their ideas and aspirations.

6.02a Swansea Council

PPW explicitly states (Edition 12, paragraph 6.2.5) that “*Green Infrastructure Assessments provide key evidence to support the preparation of development plans*”. It also states that GIA “*outcomes should be integrated into development plans to ensure the early and co-ordinated consideration of opportunities to inform the development, design and land related strategies of the development plan*”.

This is the first priority for Swansea Council, currently engaged in producing their LDP2 at the time of writing (October 2024). The LDP2 process should consider the findings of this GIA and the objectives set out in this document. These should inform both the spatial decisions within the LDP2, e.g. the location of allocated development sites, and the detailed policies contained within the LDP2. Suggestions include:

- Careful consideration of possible strategic development sites to consider a) potential impacts on valuable GI onsite or nearby and b) potential opportunities, delivered by or funded by development, which could see significant enhancement of the GI of an area, or the delivery of the objectives of this GIA. Given the requirement for all development to now deliver Net Benefit to Biodiversity, defined (PPW 6.4.5) as “the concept that development should leave biodiversity and the resilience of ecosystems in a significantly better state than before” the traditional assumption that development will have a deleterious effect on the environment needs to be replaced with a consideration of what benefits it can (and must) now deliver. Where historically we saw site allocations utilising development to deliver and invest in ‘grey’ infrastructure, we now need to see a similar approach to the protection and delivery of GI. This should not only underpin

the site selection process but should be written into the policy wording for specific allocations;

- LDPs have, for some time, included general policies to ensure the protection of GI assets e.g. trees and hedgerows and these should be continued (while avoiding unnecessary repetition of national policy set out in PPW). However, an area worthy of further consideration would be the inclusion of a policy mechanism to allow for offsetting of GI mitigation away from development sites where this is considered more beneficial, in GI terms, than mitigation onsite. This GIA should act as a useful framework for judging such decisions – where site specific delivery of mitigation is either difficult/impossible or where resulting enhancements may be ecologically isolated or poorly connected then it may be better to seek offsite enhancements/contributions which support the objectives of this GIA. This could greatly assist in the delivery of some aspects of this GIA and also allow development sites, where more beneficial overall from an ecosystem resilience perspective, to focus on delivery of strategically planned development e.g. new homes. Current national policy allows such steps (through the stepwise approach set out in PPW) but a Swansea specific policy, set out in the LDP2, is worthy of further consideration;
- A further area of new policy identified by this report, worthy of consideration for inclusion in LDP2, is a specific policy to protect peatland across the County. PPW rightly identifies this as a scarce resource of huge importance to both biodiversity and carbon-sequestration, and policy in this regard is therefore recommended;
- This GIA has also identified the significant potential of Y Mawr to offer a landscape park opportunity of a regional scale. The feasibility of this proposal should be explored and it is suggested that the Council could take an innovative and pioneering approach here and consider allocating/designating this whole GITA as a landscape park within LDP2, with associated policy identifying the objectives of its designation, the types of development which will be positively considered within its bounds and the sorts of GI enhancements which these might expect to be delivered. Through such a constructive policy collaboration with development and other stakeholders if such a concept is feasible this may be able to ‘turbo-charge’ the concept of Y Mawr, set out in this GIA, into a significant new GI resource for South West Wales; and
- Critically, the findings of this GIA, and particularly the objectives set out for the County and the GITAs, should inform the continued working of the Council on its Green Infrastructure Strategy. There has been positive and useful engagement with the Council’s officers during the preparation of this GIA and it should now act as a robust foundation to inform future work on the GI Strategy. Whilst the nature of the GI Strategy will need to be scoped and developed by the Council, it is considered it could begin to focus on the individual objectives identified here, prioritising those which are either most important or most readily deliverable to drive and deliver the visible change which is needed. Early visible change could then be used as a catalyst for further change and increased stakeholder engagement to help deliver the wider objectives, finding solutions to some of the complex challenges and funding and resources where these are lacking.

6.02b Developers

PPW states (paragraph 6.2.6) that “The Green Infrastructure Assessment and outcomes should also be given early consideration in development proposals, and inform the design and implementation of projects”. Throughout Chapter 6 PPW now makes it clear that development proposals must consider GI from the inception of the proposals and this GIA should now be considered an important part of the baseline information gathering stage.

As noted above, all development now Needs to deliver a Net Benefit to Biodiversity by leaving the environment in a ‘significantly better’ state. To do this, developers need to understand the current ‘state’ of their site and what ‘better’ looks like. Along with all the usual sources of baseline information, this GIA (and the online data portal which will be made available) will help in providing not just an understanding of the existing GI context to any specific site but also the wider GITA objectives to which it should contribute, either through onsite mitigation and enhancement or offsetting away from the site (where policy allows).

Developers and their design teams should identify their site within the GIA and the relevant GITA, and consider what added value they may be able to deliver. This should be considered at all stages of the planning process, including during the promotion of strategic sites for allocation within the development plan, right through to the preparation of detailed proposals.

How the GIA has been used to inform planning application proposals should be included within applicant's GI Statements (a requirement of every planning application through PPW edition 12). The GI Statement should:

- Include a summary of the GI baseline and the effects of development upon it;
- Show how the effects have been avoided, minimised, mitigated or offset (‘the stepwise approach’); and
- How, ultimately, a Net Benefit for Biodiversity has been achieved. Benefits which support the objectives of this GIA are likely to deliver greater value than ad hoc mitigation considered only at the site level.



6.02c Final Summary

This GIA is the outcome of an extensive exercise undertaken with and on behalf of Swansea Council over an extended period. It identifies a range of objectives across the whole County which will, if pursued and delivered, ensure the retention, protection, enhancement and connectivity of the GI assets of the County. This in turn will protect the health and wellbeing of its population and the wildlife with which they share this landscape. It is the responsibility of everyone, the Council, developers, stakeholders and the public, to ensure that these aspirations are met and that Swansea continues to be a beautiful green destination to be enjoyed and cherished. Hopefully, this GIA will play an intrinsic part in that ultimate outcome.

APPENDIX 1: DETAILED METHODOLOGY



GIA Methodology

The GIA aims to establish what GI and ecological networks exist in the area, and what condition they are in. The GIA has been developed broadly as outlined in NRW Guidance, and augmented by the use of additional datasets and projects undertaken by Swansea Council. The GIA responds to the requirements of national policy in PPW, these include:

- Identifying suitable locations for securing off-site compensation;
- Providing a spatial guide to identifying opportunities for securing a net benefit for biodiversity;
- Determining whether locations for habitat compensation should be placed close to development sites, or whether new habitat or additional management located further away from the site would best support biodiversity and ecosystem resilience at a wider scale;
- Protection of water features and fostering sustainable water management, which are important elements of securing the multiple benefits of green infrastructure; and
- Identification of managed wetland and riparian buffer zones to improve water quality which will have a positive benefit in both reducing diffuse pollution and as part of securing a net benefit for biodiversity, and improving the attributes of ecosystem resilience.

GI Baseline

The baseline stage of the assessment is primarily a GIS data exercise that looks at a range of datasets related to the provision of multi-functional GI in Swansea County and beyond. NRW guidance identifies a wide-ranging list of potential datasets that can inform a GIA. This list, together with the additional data and resources identified by Swansea Council, was used to gather current information of existing GI assets and assimilated into a GIS model. The creation of this GIS model enables a better understanding of the spatial relationship between the various datasets. A list of the principal datasets used is included in **Table B**.

The GI datasets gathered vary wildly in their coverage, scale and resolution, some including information on all of Wales, others limited to Swansea as a whole or individual sites within the County. Therefore, for the purposes of the GIA, decisions about the extent and which datasets were to be used was made in consultation with Swansea Council in order to focus the scope of the analysis on the County. These data decisions included:

- National or regional data was gathered within the County boundary and a 5 km distance beyond in order to understand and reveal cross-jurisdictional GI networks and resources;
- The level of detail or resolution of some datasets was too coarse, or in some cases too specific to individual sites or assets, to be valuable for a GIA at the County level. For example, some work on ecosystem services and resilience has already been completed, but when reviewed is too coarse a scale to be useful at the local authority scale. For instance, NRW has completed a map atlas of the “Current relative value (CuRvE)” for ecosystem resilience in 1km squares that it was felt had limited value in informing decisions at the local level; and
- It was decided to focus the GIA predominantly on terrestrial and inter-tidal areas of the region. Although it is acknowledged that the marine environment has significant ecological importance and is vital to a host of ecosystem services, it also involved consideration of an extent well beyond Swansea County;

Several approaches were considered relating to the appropriate level of detail and scale of the baseline analysis following a review of the relevant baseline information. Many of the datasets reviewed overlap, or are very specific to discrete areas, and when compiled and viewed together create a complex and detailed patchwork of GI assets across Swansea.

Given the complexity of this picture, it was decided to take a three-stage approach to assessing and interrogating the GI data:

- Stage 1: Establish broad strategic/landscape scale GI networks and assets by grouping relevant themes/layers;
- Stage 2: Investigate and ground-truth specific GI assets through site visits; and
- Stage 3: Investigate the condition of specific areas where opportunities for GI improvements can be pursued to inform the LDP2 process/policies.

Stage 1: Establish broad strategic/landscape scale GI networks

This stage involved ‘filtering’ the various GIS data into groups that related specifically to existing and baseline assets and were appropriate at a broad, landscape scale. The intention was to exclude data that was more fine grained and identify areas as part of a GI strategy.

It is important to understand that many of the datasets reviewed include extremely helpful information resulting from a significant amount of research and effort. However, some of these datasets were not included in the Stage 1 analysis due to their complexity, or site specific nature. However, these datasets were not ignored but instead formed part of the Stage 2 part analysis when exploring opportunities for GI improvements.

For the purposes of Stage 1, data was grouped based on broad habitat types, designations and features that would help identify the strategic GI networks and assets across Swansea and its nearby neighbours. These initial broad themes included:

- High Ecological/GI Value - various international and national designated sites such as SSSI, SAC, Ramsar, Ancient Woodlands, etc.;
- Moderate Ecological/GI Value - locally designated sites such as SINC, Local Nature Reserves, etc.;
- Other Ecological/GI Value - local GI assets such as formal and informal open space;

- Water and Riparian GI - areas subject to flooding, watercourses, canals, etc.;
- Trees and Woodland - national forest inventory, urban trees, etc.;
- Movement and Heritage - active travel routes, PRoW, scheduled monuments, common land, etc.
- LANDMAP - visual and sensory sensitive areas; and
- All Wales Dataset - classifies land that has not been built on or covered with man-made surfaces.

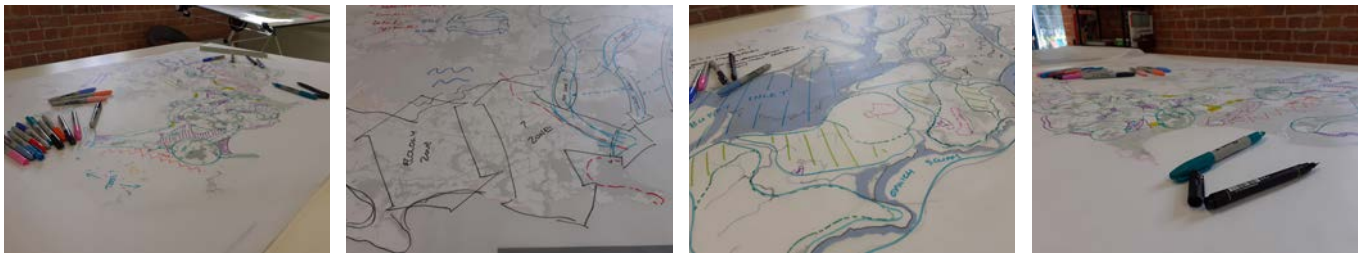


Figure 25: Initial GI Assets and Networks Analysis

These broad groupings were then used to prepare thematic maps of the region (see **Appendix 2** for complete list of grouped data), which were used to identify the broad networks of the Swansea area. This analysis entailed a review of the assets at a strategic level and identification of concentrations of GI assets, landscape level features and important GI corridors, as well as potential opportunities for linkages, stepping stones and connections. This analysis highlighted that at a strategic scale, Swansea County, can be divided into three clear areas:

- Gower National Landscape to the west;
- The city and urban fringes in the centre; and
- The open rising landscape of 'Y Mawr' to the north of the M4 corridor.

Upon completion of this stage of analysis, and in consultation with Swansea Council, the strategic GI diagram was prepared and presented in draft to the Swansea planning and nature conservation team members for comment and discussion. Those discussions yielded a variety of comments and inputs that were then incorporated into the final version of the strategic GI plan (see **Figure 26**).

Stage 2: Ground truth and investigate specific GI areas

EDP has an extensive knowledge of GI in and around Swansea that has been utilised throughout the preparation of the GIA. EDP is a multi-disciplinary environmental consultancy who have worked on numerous sites in the region, with landscape, ecology, heritage and arboriculture experts in-house. This knowledge was used qualitatively to investigate designated GI, linkages and assets throughout the GIA process, but particularly during this ground-truthing stage. In addition, EDP also conducted several site visits over the course of the assessment to further assess the quality and types of GI and to inform the third stage of baseline analysis.



Figure 26: Strategic GI

Stage 3: Identify where opportunities for GI improvements can be pursued to inform the LDP2 process/policies

This stage of the assessment began looking at the more fine grained GI data to understand key themes and topics. The pattern that began to emerge was that in many cases, GI features and functions may simultaneously be considered strengths, weaknesses, opportunities and threats due to the potential for them to exist in different conditions across the County. For example, features that are strong in rural areas may be weak in the city (and vice versa). It is also often the case that weaknesses may present opportunities, and that some strengths may also present threats (e.g. pressure from tourism).

To better understand these relationships, EDP undertook a blended SWOT analysis of a wide-range of topics to better understand the relationship between competing interests and issues affecting GI in Swansea. **Figure 10 on page 22** illustrates this approach diagrammatically, with a more detailed discussion of these relationships provided in **Table C in Appendix 3**.

This analysis, together with the Strategic GI drawing and initial GI observations, was delivered to Swansea Council for discussion and to inform the initial consultation on the LDP2 strategy options.

Following the close of the comment period on the LDP2 strategy options, a more refined analysis of the data and assets was undertaken in order to identify opportunities for GI improvements across the County. This phase of the GIA resulted in a range of potential GI interventions, priorities and objectives that could be included in the final GIA, either at a County-wide level, or that might be more appropriately focused on more discrete geographic areas.

To this end, these GI priorities and objectives were grouped under a series of GI Target Areas (GITAs) that articulated a shared vision for those areas, and which identified a range of opportunities and challenges for each. These areas were initially defined based on geographies where priorities for GI enhancement or concentrations of GI assets were located. This approach, rather than based on other environmental boundaries such as habitats or watersheds, was felt to be more appropriate when identifying areas of multi-functional GI. This is because GI assets include GI assets that do not relate or follow environmental boundaries, such as cultural or transportation related features. As such, the GITAs cross watersheds, ecological designations and topography, however, that is not intended to mean that the functional connections and links between these GI systems should be ignored.

Further refinement of the GITA boundaries was also informed by underlying data, particularly information from SEWBRc on ecosystem resilience, which was used to test the initial GITA boundaries.

GIA Engagement

There has been on-going engagement through the GIA process, which will continue throughout the LDP2 process, including:

- Regular meetings (monthly) with Swansea officers concerning data, themes and GI initiatives to inform GIA;
- Teams meeting with Swansea Natural Resources officers to discuss GIA and strategic GI networks and resources;
- Teams meeting with NRW to discuss coordination of GIA with RENs and other NRW initiatives with Swansea;
- On September 17 2024, in partnership with Swansea Council EDP held an all-day engagement session in order to receive input and comment on the draft vision, objectives and priorities for the GIA. Two sessions were held at the Guildhall in Swansea and included representatives from NRW and a wide-variety of Council officers with knowledge and expertise in local GI resources. During the sessions, boards for the County GI vision and each GITA were displayed and attendees were asked to add comments to relevant boards and discuss issues with both EDP and Swansea officers; and
- A consultation period on the draft vision, objectives and priorities for the GIA was left open for comments from those unable to attend the engagement session until September 30 2024.

Following the close of the consultation period and in response to suggestions made, the boundaries of the GITAs were refined and the objectives and priorities revised and are incorporated into this draft GIA. A summary of the engagement comments is provided in **Table D**.

It is expected that additional comments may be received on the GIA through the LDP2 process, and therefore it is anticipated that further refinements and revisions may be necessary before a final version of the GIA is delivered. Upon completion of the GIA, data layers of the GI assets will be created (merging individual datasets) to be made available to the public by Swansea Council so as to inform future development proposals and Council projects.



Figure 27: September 2024 Engagement Sessions

Table B. Principal Date Sets for Baseline

Dataset	Description (if needed)
Active Travel Routes	
All Wales Green Space dataset	Identifies all areas in Wales that have not been built on or covered with a man-made surface. It is the best available record of green space in Wales.
Ancient Woodland	Ancient Semi Natural Woodland (ASNW), Restored Ancient Woodland Site (RAWS), Plantation on Ancient Woodland Site (PAWS) or Ancient Woodland Site of Unknown Category (AWSU).
Area of Outstanding Natural Beauty (AONB)	
Welsh Index of Multiple Deprivation (WIMD) 2019	Welsh Government's official measure of relative deprivation for small areas in Wales. It is designed to identify those small areas where there are the highest concentrations of several different types of deprivation (e.g. income, employment, health, education, access to services, housing, community safety, and physical environment).
Countryside and Rights of Way (CROW) Act 2000 open access land	The CROW Act provides for public access on foot to certain types of land and amends the law relating to public rights of way and was part of the Countryside and Rights of Way Act 2000 (CROW Act). Data should be used in conjunction with Registered Common Land.
Dark Skies	Created to identify the strategic and local resource in remote, rural, peri-urban and urban areas for use as an evidence base to inform policy intent, practice and provision for wellbeing benefits.
Local Places for Nature - Food Growing	Community food growing opportunities including the provision of allotments.
Food Growing Areas	The location of allotments or community growing spaces across Wales derived from Ordnance Survey's Open Greenspace Dataset.
Formal Open Space	Data layer provided by Swansea Council.
Informal Open Space	Data layer provided by Swansea Council.
National Cycle Routes	
Green Roof Opportunities	Data layer provided by Swansea Council.
Green Roof Existing	Data layer provided by Swansea Council.
Public Rights of Way	
Registered Common Land	
County Parks	
Canals	
Rivers	

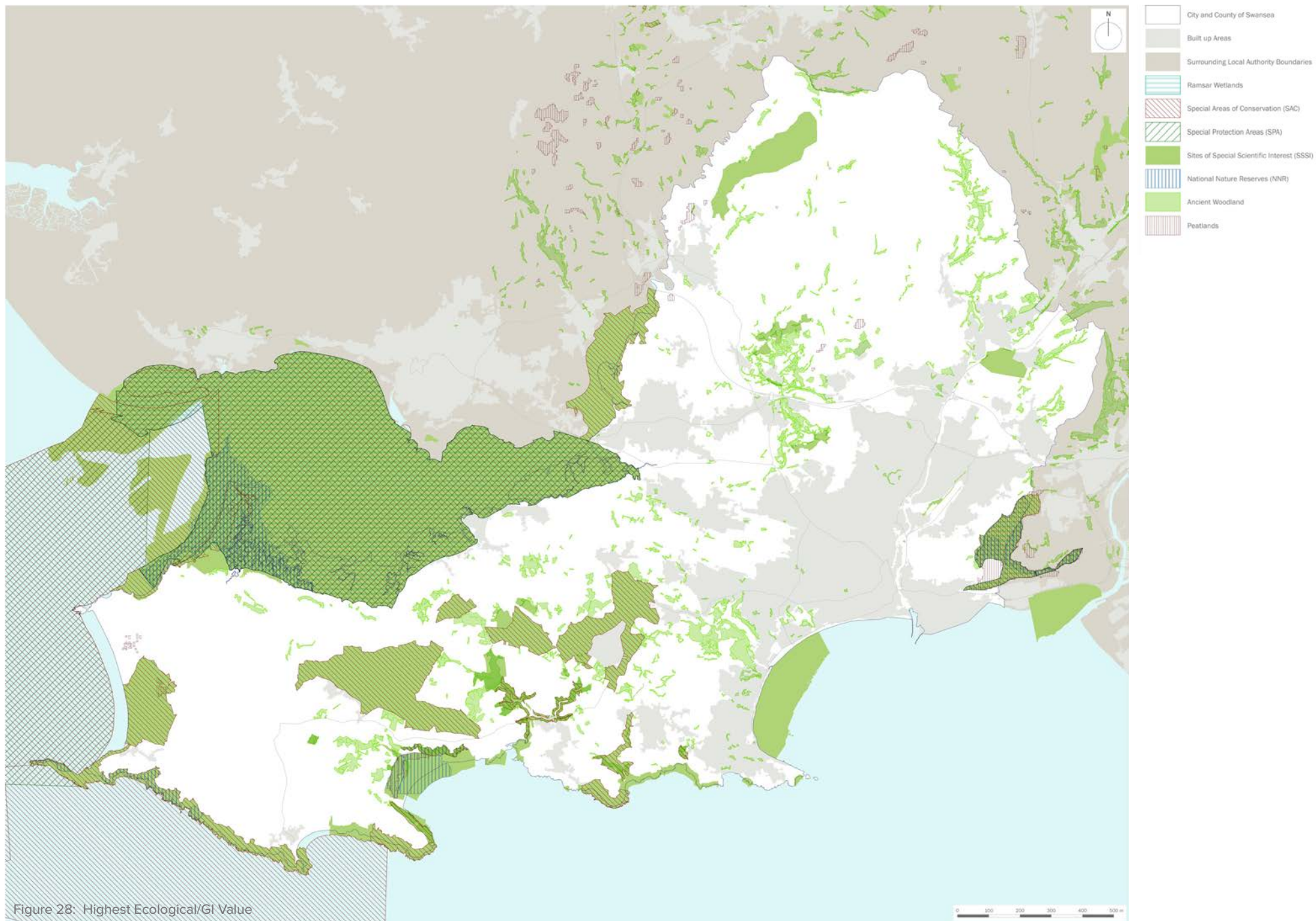
Dataset	Description (if needed)
Existing Tree Canopy Cover	Data layer provided by Swansea Council.
Tree Preservation Order layers	Data layer provided by Swansea Council.
Urban Tree Canopy Cover	NRW dataset of urban tree cover showing individual trees, groups of trees and urban extents.
Protected Site Networks	This dataset contains the boundaries of Designated sites in Wales and includes information such as designation type, unit name, unit area, national grid reference and former Countryside Council for Wales (CCW) regions.
Water Courses	
Current Relative Value of ecosystem resilience (CuRve)	Web-based maps that form an atlas to explore how ecosystem resilience varies across Wales and understand the underlying reasons for this variation. Experimental project to reveal relative values and spatial patterns of ecosystem resilience at a landscape scale for Wales. 1 km grid scale up to countrywide.
Ecosystem resilience mapping	SEWBRc dataset that maps the four key attributes of ecosystem resilience (Diversity, Extent, Condition and Connectivity) and also combined in an "Overall Ecosystem Resilience".
Carbon Sequestration (WOM21)* use new interactive tool once published by WG	From modelling at a spatial resolution of 250m2, the maximum possible tonnes of carbon sequestered per hectare per year from planting trees.
Flood Maps for Planning	
National Forest Inventory Woodland Wales	
Peat Soils	
Environment (Wales) Act Section 7 and OSPAR: Marine Habitats	Areas of "Principal Importance" for the purpose of maintaining and enhancing biodiversity.
Environment (Wales) Act Section 7 Terrestrial Habitats of Principle Importance	Areas of "Principal Importance" for the purpose of maintaining and enhancing biodiversity.
Green Flag Awards	Benchmark for parks and green spaces in the UK and beyond.
Local Nature Reserves	
Marine Protected Areas in Welsh Waters	The Marine protected area (MPA) network is a subset of existing protected sites that have marine features. Sites include: SACs, SPAs, Ramsars, SSSIs and MCZs.
National Nature Reserves	

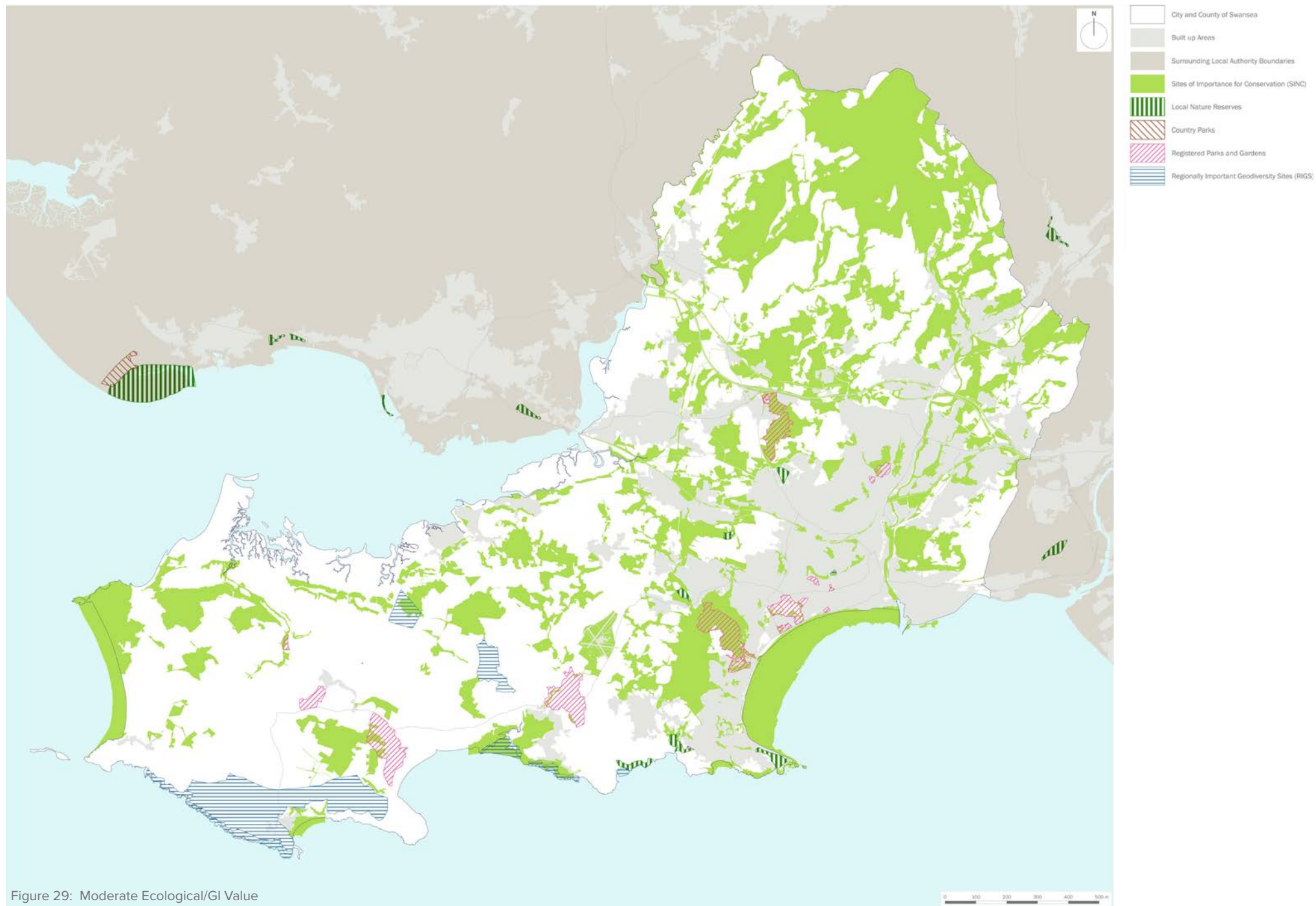
Dataset	Description (if needed)
Orchards	
Phase 1 Habitat Survey	This dataset holds comprehensive habitat cover data for the whole of Wales to inform site selection, casework and policy decisions.
Phase 2 Habitat Survey	Characterise several vegetation types across Wales and to provide a systematic conservation assessment of the sites surveyed.
Potential Habitat for Great Crested Newts	Using Great Crested Newts habitat suitability modelling to identify habitats that are likely to be suitable.
Potential Habitat for Water Voles	Using water vole habitat suitability modelling to identify habitats that are likely to be suitable.
Priority Ecological Networks (PENs)	All-Wales habitat networks that show areas of connectivity between Protected Sites.
Ramsar Wetlands	
Regionally Important Geodiversity Sites (RIGS)	Non-statutory sites selected to protect the most important places for geology, geomorphology and soils.
Sites of Importance for Nature Conservation (SINC)	
Sites of Special Scientific Interest (SSSI)	
Special Areas of Conservation (SACs)	
Special Landscape Areas	
Special Protection Areas (SPAs)	
Wales Coast Awards (Blue Flag etc.)	Wales Coast Awards recognised as a symbol of quality.
Heritage Coasts	
Historic Landscapes	
Historic Parks and Gardens	

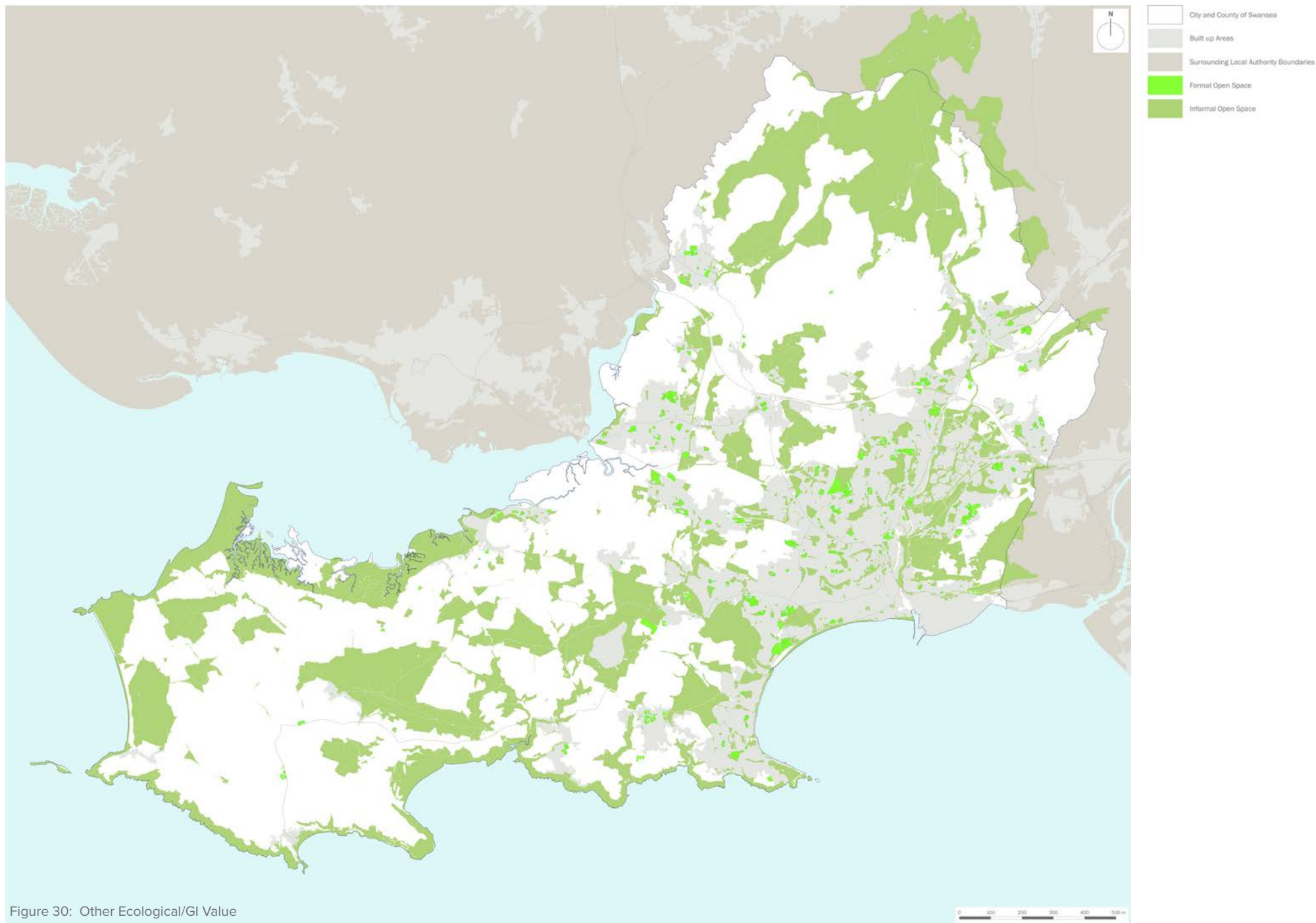
Dataset	Description (if needed)
LANDMAP	Landscape resource where landscape characteristics, qualities and influences on the landscape are recorded and evaluated into a nationally consistent dataset.
Environmental Noise Mapping 2017	Contains all the sound level contours calculated in 2012, in 5-decibel "A-weighted" contour bands.
Tranquil Areas Map of Wales	A map of the land of Wales, graded to show levels of tranquillity. Produced to provide a strategic baseline for monitoring change in tranquillity in Wales to inform strategic planning and policy-making.
Wales Coast Path	
Agricultural Land Classification	
Air Quality Data Wales	
Ash Lichen Alerts	10x10m, 100x100m and 1000x1000m areas where a Threatened Lichen has been recorded on Ash, dataset is designed to allow land managers to rapidly identify whether they need to consider rare lichens when working with Ash trees, especially if they are considering felling a tree because of Ash Dieback.
Invasive Non-Native Species (INNS)	
Shoreline Management Plans	
Sustainable Management of Marine Natural Resources (SMMNR)	Sustainable management of marine natural resources. Developing an environmental evidence base for the Welsh marine area.
Water Resource Availability & Reliability	Provides a national picture of Water Resource Availability for each Water Framework Directive Cycle 2 water body.
Connectivity Swansea	Swansea habitat networks that show areas of connectivity between Protected Sites.
Council Owned Land	
Tree Planting Opportunity	Dataset with areas of opportunity for tree planting.
Scheduled Monuments	
Listed Buildings	
Heritage Coast	
Heritage Landscape of Outstanding Historical Interest	
Conservation Areas	
Protected Site Heritage Coast	

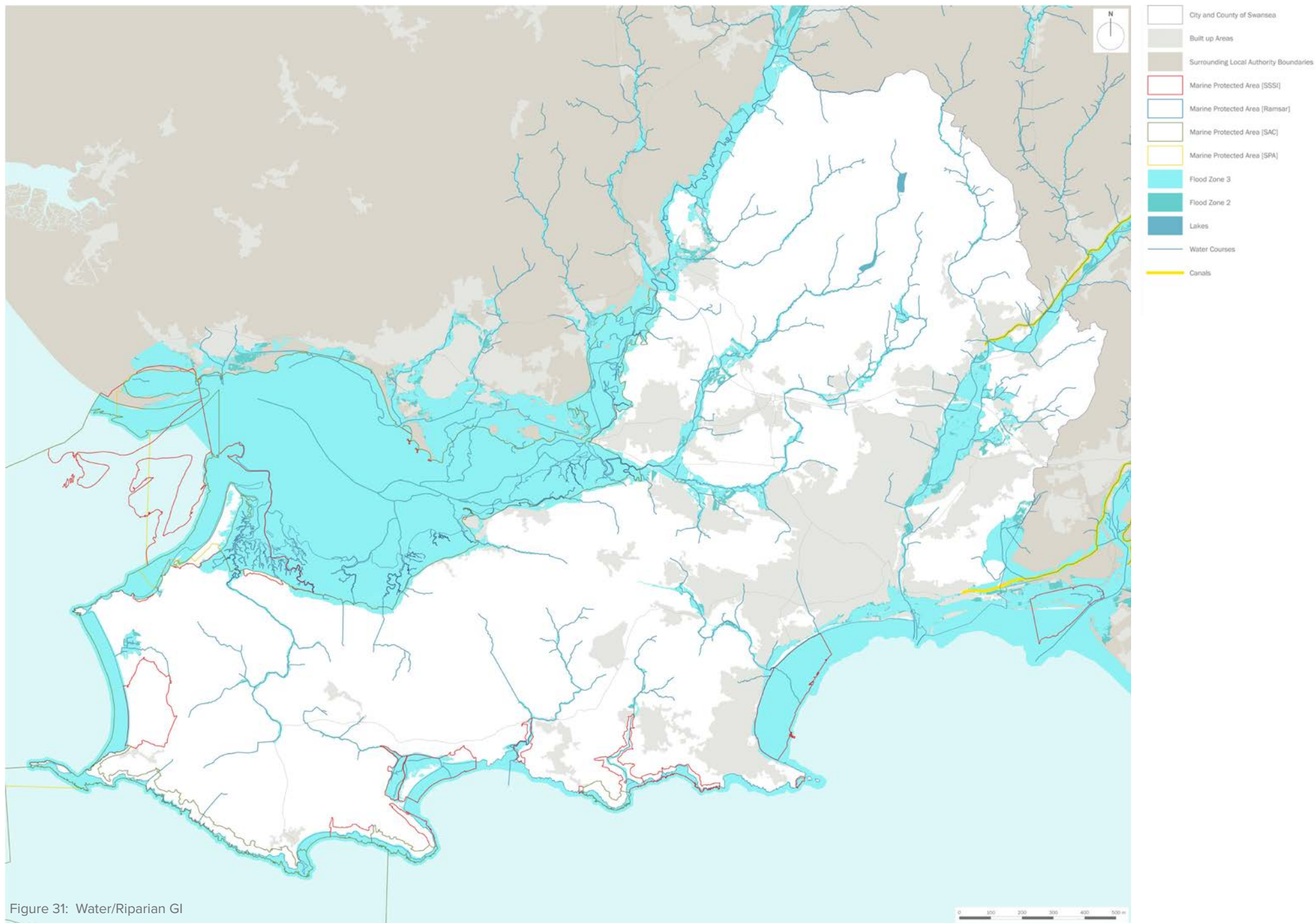
APPENDIX 2: THEMATIC BASELINE MAPS

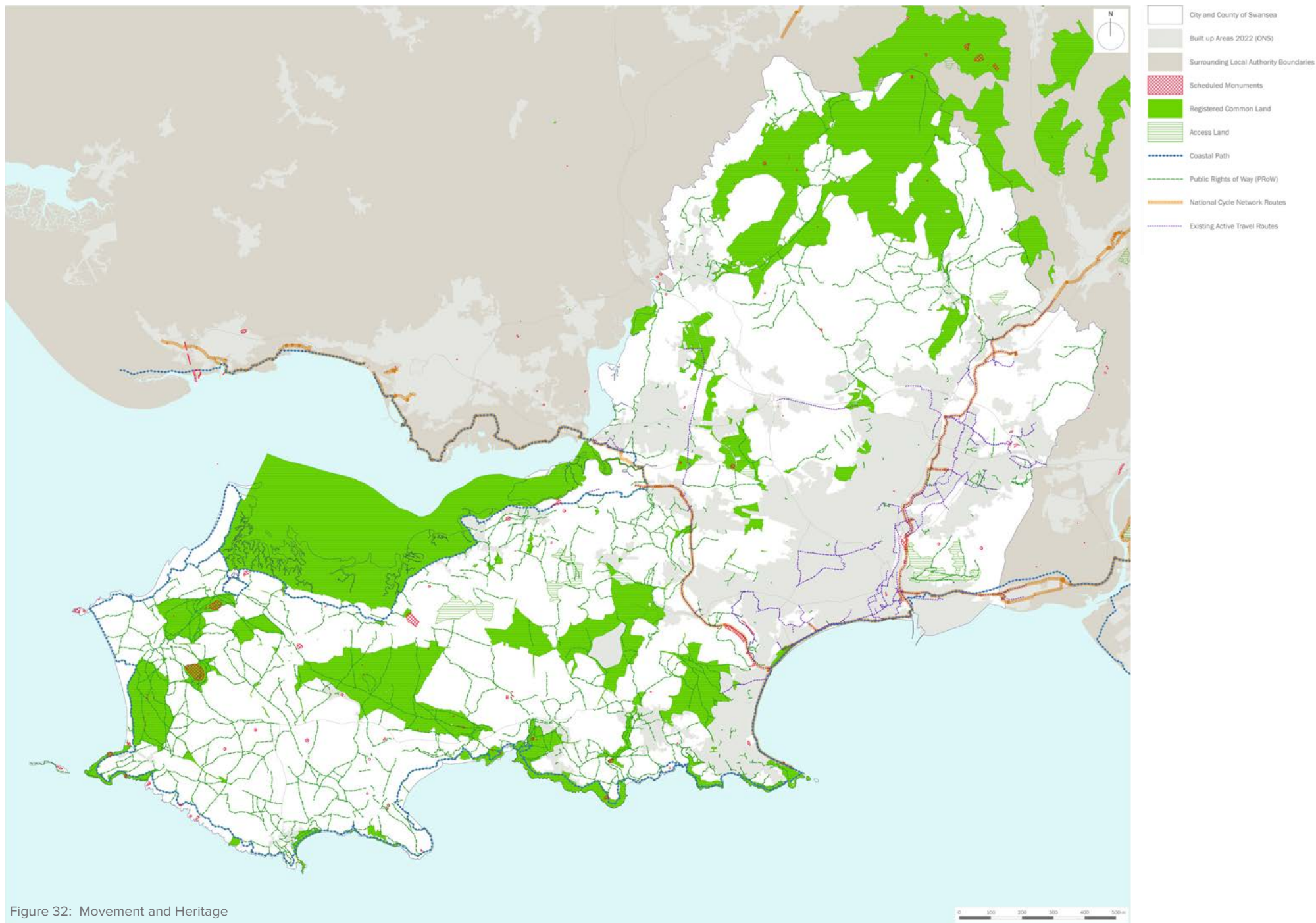


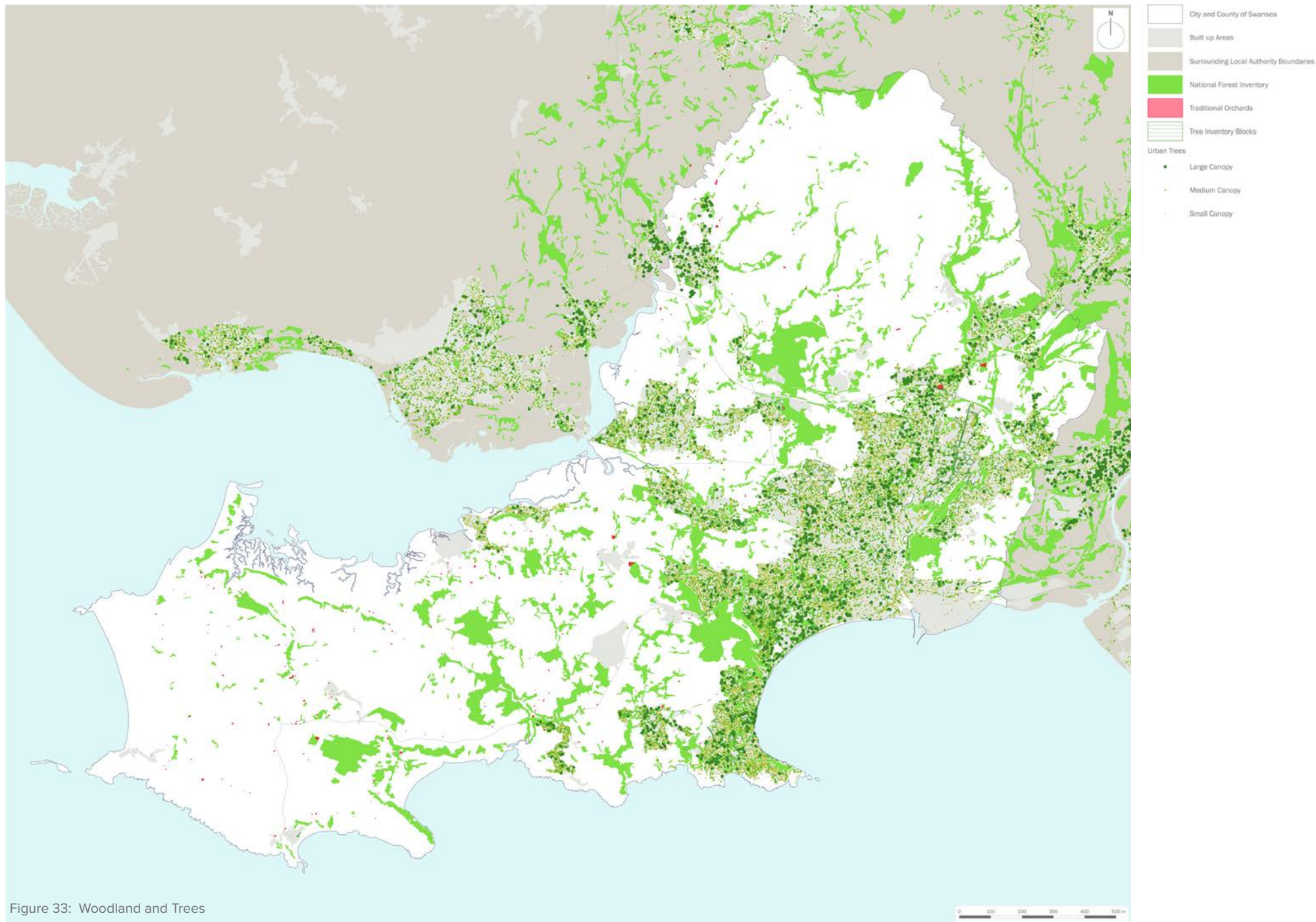












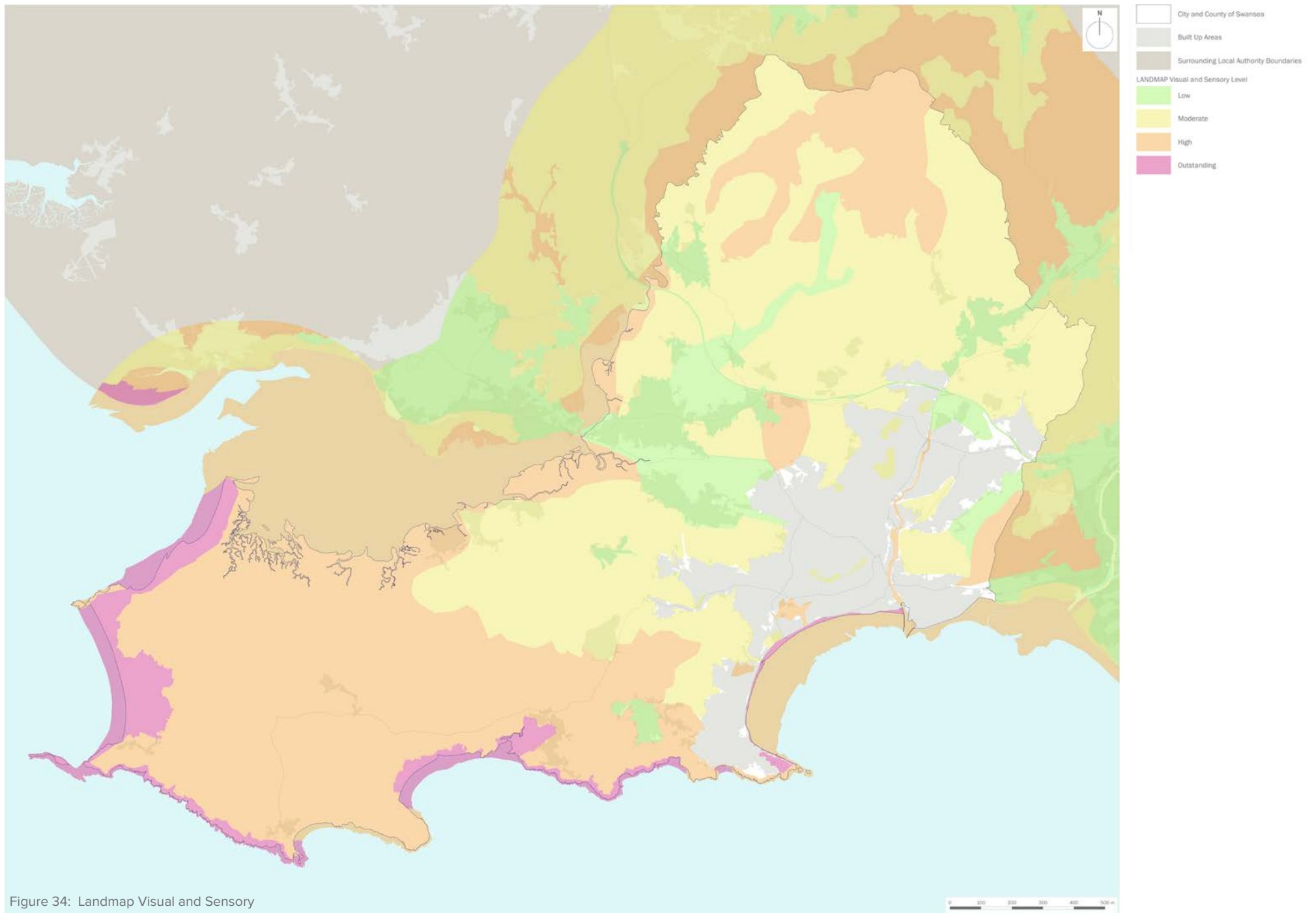
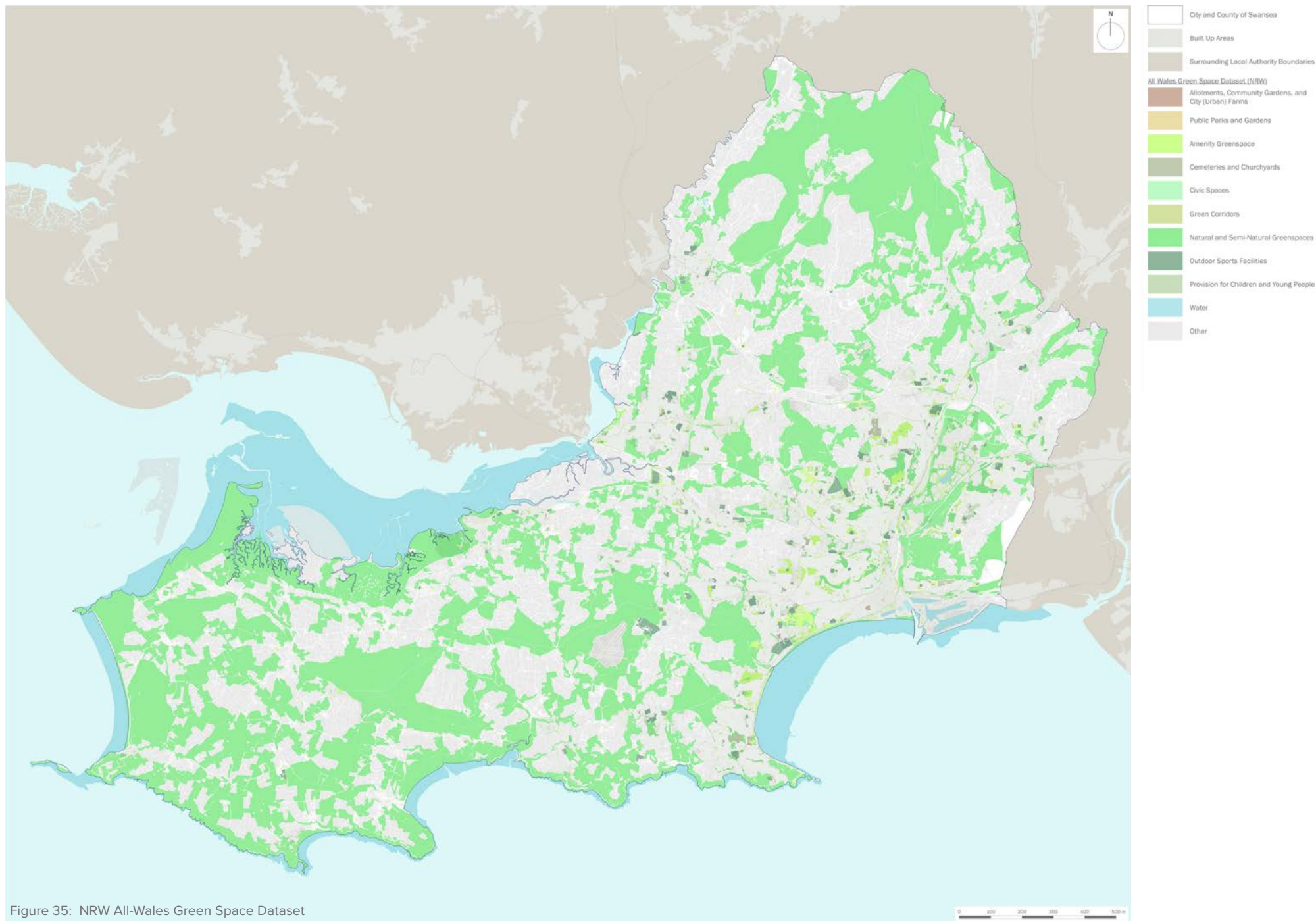


Figure 34: Landmap Visual and Sensory



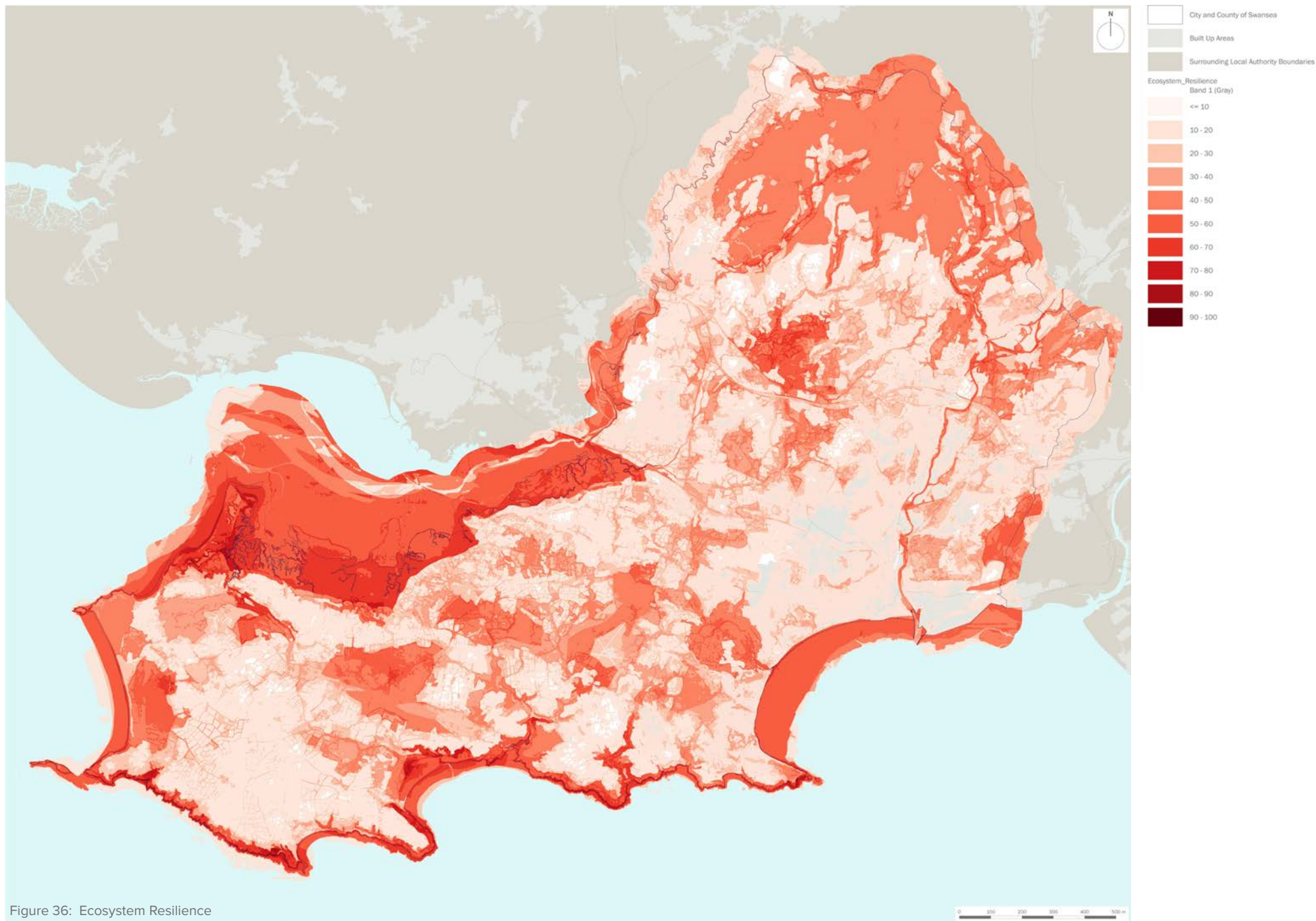


Figure 36: Ecosystem Resilience

APPENDIX 3: BLENDED SWOT ANALYSIS



Table C. Blended SWOT Analysis

SWOT	GI asset/feature/function/topic	Comments
Strength	Ramsar, SAC, SSSI, RPGs.	These designations tend to come with management plans/requirements and therefore deliver greater strength than others (e.g. SINC – see below).
	Beaches, Gower coast.	Gower coastline and beaches are a key strength/attractor.
Weakness	Protection of Peatland.	Referenced in PPW12 but no specific designation and several areas appear unprotected. Consider specific policy.
Opportunity	Council Land.	Land ownership/control is key to delivery.
	NGO Land.	
	Welsh Water Facilities.	
	Cross Boundary Economic Development.	Investment, funding and cross boundary collaboration is key.
	Swansea Bay City Region.	
	Foraging.	Opportunities for greater wild food production and better pollinator support through re-wilding/re-greening projects.
	Pollination.	
	SuDS.	SuDS gives further opportunities for greening, pollination, and integration of GI into development (new and retrospectively).
Threat	Climate Change.	Climate change likely to drive change in the landscape and biodiversity.
	Sea Level Rise.	Livestock and pets cause a variety of impacts on wildlife and landscapes.
	Livestock/Pets.	
	Invasive Non-Native Species (INNS).	INNS are an expansive problem and expensive to control.
	Air Quality.	Air Quality impacts on a range of GI aspects as well as health and wellbeing.
	Raw Materials (production/extraction).	Production or extraction of raw materials has obvious potential to harm or inhibit GI. Not a significant issue in the County.
Strength + Weakness	Designation (of land, through policy).	Designation, in itself, doesn't protect landscape or biodiversity. This is achieved through management which often is required/funded irrespective of designation. Caution is advised against any sense that simply designating land protects it. It may prevent development, though that may be the only thing which may fund its protection.

SWOT	GI asset/feature/function/topic	Comments
Weakness + Threat	Water Quality.	Water quality already impacted by pollution and poor management. Poor water quality (and sewage, fly tipping) in turn threatens a range of other GI aspects.
	Pollution.	
	Sewage.	
	Fly Tipping.	
	Vehicular Movement (road/rail).	Vehicular movement already impacts significantly on the County and has the potential to do further harm in areas of intensification/development.
	Cross Boundary Collaboration.	Cross boundary collaboration and funding currently considered to be weak and a potential threat to cross boundary GI initiatives.
	Funding.	
Threat + Opportunity	Flooding/Flood Prone Areas.	Loss of land and impact on habitats due to flood inundation is a threat, but in some areas may prevent development pressure, and allow for specific habitat creation opportunities (subject to funding).
	Unregistered Land.	Unregistered land may be unmanaged and at risk of INNS, fly-tipping etc. Opportunities may exist to bring it into public ownership and management.
	Development - Housing/commercial/other.	Poor development will continue to be a threat but good development, which meets the requirements to deliver biodiversity net benefit, may be positive. In some instances, allowing development may be the key to unlocking GI enhancements either onsite, nearby or through offsetting mechanisms. Collaboration and constructive dialogue with developers is imperative.
Opportunity + Strength	Common Land/Open Access Land.	Commons and OAL provides access to large areas of outdoor space but is often poorly understood and inhospitable. Management is also varied and grazing rights need careful consideration.
	Cultural Heritage.	Many cultural heritage sites and features are well maintained, but there can be conflict between access and protection. There will be opportunities to better capitalise on the wide range of heritage features which the County contains.
	Local/National Nature Reserves.	Local level designations often come without management controls/requirements and, as such, offer a poor level of protection. They cover extensive areas however so are a key opportunity which needs to be explored further to a) ensure better protection where appropriate, b) remove designation where not necessary and c) to seek funding opportunities, potentially through development returns to improve their condition and multi-functionality.
	Ancient Woodland.	
	SINCS.	
	Dark Skies.	Significant parts of the County are tranquil and experience good degrees of dark sky. Opportunities to reduce light and noise pollution should be explored.
	Tranquillity.	
	Gower National Landscape.	The Gower NL and the attractive landscapes of the Mawr and the County as a whole are a key strength and a huge opportunity on which to build a strong GI network and strategy for improvement.
	Landscape (generally).	

SWOT	GI asset/feature/function/topic	Comments
Strength + Weakness + Threat	Health and Wellbeing	Social deprivation, poverty, poor access to services often go hand in hand with poor access to good Green Infrastructure, recreation facilities and associated wellbeing benefits of both.
	Access to services/ facilities/ green space	
	Social Deprivation/ Poverty	
	Urban/suburban areas	Some aspects of GI (and indeed biodiversity) can thrive in urban settings and new development (or retrofitting) can provide significant GI benefits. New development must now ensure net benefit to biodiversity and so should be positively harnessed to deliver wider GI benefits.
	Carbon Storage/ Energy Storage	Carbon storage (or energy storage) is likely to play an increasing part in future strategies and planning decisions and has the potential to affect GI both positively and negatively. For example, carbon sequestration through woodland planting may be beneficial, or it may be inappropriate depending on the receiving habitat, which may be of greater value. Energy storage may require substantial 'battery farms'.
Threat + Opportunity + Strength	Play	Swansea has some great parks including a series in the city centre which offer further potential as ecological 'stepping stones'. There can be conflict between recreational needs and nature however, so careful siting and design is needed for new play and recreation facilities. GI multi-functionality is key.
	Recreation	
	Parks	
	Tourism	Tourism is perhaps Swansea's greatest strength and economic opportunity. But visitor numbers also create significant problems related to congestion, litter, pollution, noise, disturbance, erosion etc.
Opportunity + Strength + Weakness	Ecological connectivity	Some parts of the County have excellent wildlife connectivity and people connectivity (Active travel). Some have both and others have neither. There is some concern about the potential for Gower to become an ecological island due to being cut off by the urban area.
	Orchards/ Allotments	Small scale (non-agricultural) food production such as allotments and features such as orchards appear scarce in some places and opportunities to increase density of these features, and improve multi-functionality could be explored. Foraging opportunities could also be enhanced.
	Informal and Formal Open Space	A range of undesignated open spaces and formal parks and green spaces exist across the County. Where well managed and well utilised these are a strength, but weaknesses exist where this is not the case, or access/availability is low. Opportunities arise here to improve this situation.
	Education	Understanding and appreciating GI is key and vitally important to ensure the public understand the GI, its functionality, its value to them and to wildlife, and its management needs. While this may be a strength in some areas and with some groups, it is likely that much more could be done here.
	Soils/ Crops	Soils, generally, are in poor condition, particularly where heavily impacted by intensive farming or urban form. Intensive cropping of land and over-grazing can cause particular harm, and alternative approaches should be considered.

SWOT	GI asset/feature/function/topic	Comments
	Woodland/ trees/ grassland habitats	A variety of habitats exist across the County. Where these lie in well managed designated areas they may be in good condition. Many however, both designated and not, receive no management and therefore no protection and many suffer the effects of pollution, INNS and human impacts.
	"Y Mawr"	Undoubtedly the single biggest (in scale, variety and complexity) opportunity across the County. Y Mawr is a significant tract of land, north of the M4, extending to the County boundary, beyond which it has good open countryside connectivity to Bannau Brecheiniog National Park. A dramatic rolling landscape of upland, moorland, rivers and reservoirs this is a very underutilised area in human terms and has substantial potential for GI enhancement through a variety of means to improve its habitats and their management and its recreational and wellbeing value for people.
Strength + Weakness + Opportunity + Threat	Humans	Human beings cause significant harm to the environment but are also a force for its protection and enhancement. As noted above, education is key to this and may create greater opportunity for community engagement with/management of GI.
	PRoW	PRoW, active travel routes and public transport are inherently important in maximising the human value of GI while limiting the impact of private motor vehicles and associated infrastructure. However, they also bring challenges – their own infrastructure needs, increased footfall, erosion etc. and need careful consideration and balancing in some environments.
	Public Transport	
	Active Travel	
	Management	Landscape, nature, wildlife and GI are not static things. They grow, change, react to outside influence. Management is imperative where a specific outcome is required e.g. conservation of a particular habitat. However, some areas may benefit from less management (or less frequent) e.g. allowing roadside verges to grow, instead of regular mowing, allowing natural succession to occur in some areas.

Table D. Engagement Comment Summary

Comment Summary	Response (if needed)
Swansea County-wide Feedback	
We don't have public transport as such, but public owned/run transport in future will help achieve vision.	Noted.
Will the GIA be a material consideration in planning, and do we need an SPG? What is the relationship between them.	The GIA is intended to be a material consideration as part of the planning process. Swansea Council will determine if a related SPG is needed.
Role of management of GI?	GI is managed by a wide range of entities, both private and public, depending on the type and scale of the GI. The GIA, and GI strategy to come, set out recommendations for how GI could be managed but individual approaches will be needed.
Countywide cycle networks part of an Active Travel Charter	Noted.
Should each zone have a priority focus/driving principle i.e. ecosystem or transportation?	Within each GITA, the priorities for GI in those areas are identified. However, the GIA does not seek to limit the focus in these areas but rather intends to make appropriate recommendations for all aspects of multi-functional GI present.
Become a UNESCO Biosphere versus a regional park. Swansea or South West Wales UNESCO Biosphere working across the area with partners.	Biosphere reserves are ' <i>learning places for sustainable development</i> ' and are sites for managing changes and interactions between social and ecological systems. Swansea Council could pursue this designation following publication of this GIA.
Engagement essential across public sector decision makers to improve knowledge and skills, private developers and social landlords should be engaged to respond to 'new' ways of working, and partners who regularly interface with the public have an opportunity to be supported to continue conversations on working with nature.	Engagement to educate and implement GI improvements is key to its success. Engagement of the scale suggested is more appropriately included at the delivery stage when specific information is available.

Comment Summary	Response (if needed)
Relationship between the GIA, LDP, GI Strategy, SPG need to be coherent, collaborative and not repetitive.	Noted. The GIA will inform the emerging LDP2 and GI Strategy. If an SPG is needed, it should also tier off these documents and align with its recommendations.
Swansea University are looking to develop a Bio-philic Centre of Excellence in the city centre, potential to link with "Creation of GI Advisory service".	Links to related University efforts should be part of a co-ordinated approach to GI in the County. The GI Strategy should reference any existing or developing efforts.
Link to neighbouring local authorities and GIAs really important to maximise opportunities and avoid unintended consequences.	Noted and agreed.
Disagree with offsetting policy as difficult to manage and enforce; need to carefully consider how water quality policy would relate to SAB/water management act; GIA should inform work on freehold dispersal policy; how do transport aims and objectives overlap with policies and strategies led by highways; objectives need to consider long term sustainability of any interventions e.g. maintaining GI in public realm.	Noted, Swansea Council to consider whether offsetting can be implemented. To be considered as part of the LDP2 process.
Suggest not use term re-wilding as sensitive to some stakeholders.	Noted. Several references have been removed, but retained in the context of urban objectives.
GI plays a role in attracting visitors and therefore requires investment in other businesses and services.	Noted.
We need to emphasise the benefits of the GI proposals for our communities, especially children to get support and buy in.	Noted, this educational aspect to ensure successful GI support should be an integral part of a co-ordinated outreach and engagement process for all GI projects.
WG school external size guidance needs to reflect need for GI; useful to map schools on top of GI to inform and support GI enhancements; safeguarding and health/safety sometimes inhibit some GI (fencing around swales, bee keeping) – need to work together to close the gap; active travel for school trips is difficult to sell but essential going forward.	Schools and their associated open spaces are captured in some of the data layers used in the GIA. There are challenges to ensuring safe and functioning GI, which is more appropriately dealt with at the site level, as is making appropriate linkages for active travel.

Comment Summary	Response (if needed)
Parc Y Mawr	
Would strongly recommend Mawr not being part of the Valleys Regional Park as deliberately excluded in past.	Efforts to make Y Mawr a country park are not contingent on it being part of the Valleys Regional Park. If feasible, the Council would have to initiate any links under the Valleys Regional Park brand and only following discussions among the relevant Council officers and officials.
How does the vision link to other policy e.g. tourism?	The GIA informs the LDP2 through which the County's policies and programmes can be linked and coordinated.
Working with private sector to invest in infrastructure including accommodation, attractions, and reasons to visit; Y Mawr is part of Councils destination management plan.	Noted, and needed if a regional park is to be pursued following a feasibility study.
We have worked hard to feature Mawr in our marketing for Swansea, Mumbles and Gower with Mawr being part of the greater Gower.	Noted.
Limited PRoW budget – only 50% of routes are accessible in this area.	Funding in general is a challenge for many of the GI recommendations. The Council will need to prioritise GI projects against other budget priorities to ensure delivery.
Potential for area from regional transportation plan and METRO scheme links.	Noted.
What is the proposal end goal, and has a need been identified? Who will own it, resource it and is there support in the local community?	The issues raised will be considered through the LDP2 process. Ownership in the area is unlikely to need changing, although funding for marketing and resources needed to deliver Parc Y Mawr will need to be secured if its deemed feasible.
Lliw Reservoir could be an important attraction for watersports.	Noted.
Discussion needed with DCWW.	Noted, DCWW are a key stakeholder in this area.
Better active travel links needed to facilitate more use of this resource.	Noted, this GITA will need public transportation and active travel improvements to achieve the vision.
Interesting to know who on Council has been involved in Valleys Regional Park Project.	Noted.
Recognition of Pontarddulais as a key settlement which could benefit from more GI and linkages to focus on reducing flood risk in and around settlement.	The LDP2 could recognise this and other settlements as key to delivery of improved GI.

Comment Summary	Response (if needed)
Gower Linkages	
Encourage more cycle hire/Santander Bike Hire opportunities at district centres e.g. Gowerton.	Noted, this should be part of a comprehensive active travel plan.
Cycle paths to not need to be asphalt, stone dust etc. adequate for leisure use.	Noted and agreed, surface materials should be appropriate for safe use, but also to minimise water run off.
Bridging the barrier of the M4 for connectivity improvements for people and species.	Noted, and specifically included in the objectives for this GITA.
Good vision – maximise multi use GI i.e. biodiversity flood reduction – summer cooling.	Noted.
Access for people.	People's interaction and the benefits that humans gain from GI are part of the ecosystem services offered and therefore underpin the GIA.
Grassland and native woodland – priority habitats are key focus for RENS.	Grassland and native woodland priority habitats and REN are specifically incorporated into the objectives for this GITA.
Engage with Penlleagaer Valley Woods and Penlleagaer Estates as key players/ land owners/managers at heart of area under development pressure.	Noted, and these stakeholders are to be engaged through the GIA and GI Strategy development phase.
Penlleagaer Woods are a major GI hub.	Noted, and to be a focus of the GIA and GI Strategy.
RENS process will refine ecological priorities this specific GI zone should/ must be defined in collaboration with NRW.	Noted, when the REN is more fully defined the GIA can be updated accordingly as needed.
It's hard to keep the existing natural habitats, even with significant GI improvements. These habitats, which are crucial for species to thrive and migrate, get destroyed during construction. While more urban-friendly GI can be added, it doesn't provide the same functioning, connected habitats that species need, like large hedgerows, scrubby areas, and proper grasslands. I appreciate the push should be to make sure those important habitats are retained and protected but often this doesn't happen.	Noted.

Comment Summary	Response (if needed)
Swansea Urban Greenspace Network	
Urban Tree Opportunities to be explored.	Noted, and this is a key element of this GITA.
Swansea undertaking extensive consultation with children and young people for Swansea's play sufficiency assessment findings could be shared.	Noted and supported. Young people are vital to the success of future efforts and information and findings can be incorporated in the future GIA.
Role for sport and health team in using GI with work in schools.	These efforts will support the objectives in this GITA in particular.
Sufficient network of parks and open spaces here where user surveys might open up some insights.	Noted.
Climate change adoption and mitigation key to support existing infrastructure.	Noted.
Air and noise pollution challenge, urban GI green roofs/walls, swales, bioretention, rain gardens are a solution.	These are all potential interventions and supported through the GIA as appropriate.
How do we make GI more important for existing open/green spaces than building more houses, i.e. Council need financial incentives to avoid Council land being sold.	Noted.
Make use of opportunities to enhance GI on Fabian Way Corridor by continuing to provide wildflower meadows for visual appeal. This should be carefully carried out due to the associated disadvantages and risks.	The wildflowers on Fabian Way are a good example of low-cost GI interventions that have placemaking benefits to the community. The Council should support this approach here and in other suitable locations.
Connect Gower to Neath across the urban centre; capitalise on regeneration and retrofit opportunities; an urban resilient ecological corridor through retrofitting and regeneration opportunities and build on-going way of working in this area; requires an on-going engagement with public, private and communities, and multi-disciplinary trans-organisational way of working.	The connections across the city and settlement areas is important to linking Gower with the wider GI network and for the reasons stated. Retrofitting and redevelopment will enable the improvement of these linkages and provide local visual appeal.
Loughor Estuary to Neath River (note this GITA has been removed from final GIA)	
Doesn't feel like a natural area boundary in terms of ecology, river, catchments, valley topography.	Noted, this GITA engrossed into neighbouring GITAs.
Perhaps need more focus on the Gorsienon to Pontardullais area due to development pressure.	These areas and development pressure in general are now incorporated into neighbouring GITAs.

Comment Summary	Response (if needed)
Question the need to link Estuary/River along M4 corridor.	Noted, engrossed into neighbouring GITAs.
Extend the boundary further east to include the village of Neath Abbey, which is lacking in GI in some of its busiest and most important locations.	Neath Abbey is outside Swansea County, but links to adjacent GI improvements could inform cross-jurisdictional discussions.
Potential Metro route to Pontardullais/Neath offers potential to remove vehicles from network.	Noted, this is a key consideration along the Tawe River valley especially.
Enhance Connectivity across the M4.	The Gower Linkages and Swansea Urban Greenspace Network GITAs in particular identify the importance of these linkages or 'stepping stones'.
Crymlyn Bog and Surrounding Area	
More tourism/public access required as it is not well known as a destination for the public.	Noted, and this is a key element of this GITA.
Tawe Valley	
ABP (Ports) key stakeholders for dockland areas. Neath-Port Talbot working closely with their biodiversity officer on GI opportunities linked to major strategic projects (offshore wind, steelworks, freeports). Also working together through coastal alliance projects. Swansea Uni projects on algae farms.	ABP will be a key stakeholder for this GITA. Cross jurisdictional working will also be necessary to deliver network improvements with adjacent GI.
Potential METRO links through the valley from Fabian Way and back through the M4 corridor.	Noted, and part of the GITA objectives.
Is there a role here for open space investment by private sector for tourism or otherwise.	The private sector has a significant role to play in delivering GI through tourism and/or other forms of development.
Opportunities to connect to our built cultural offer via access through/from GI.	Noted, and especially important in this GITA.
Sport and health deliver walking programmes, link these to GI/cultural offer then you have reason to visit.	Noted, these kind of linkages are key to getting GI improvements delivered by meeting multiple goals.
Suggest change language of re-wild to appropriately manage for nature or nature and people. Re-wilding to communities often means letting go and looking awful.	Noted. Several references have been removed, but retained in the context of urban objectives.
NRW Tawe Trail work on-going with east side connections, Tawe users and accessibility study, sand dune management project.	Noted, and aligned with GITA objectives.

Comment Summary	Response (if needed)
SW Area Statement Team are working with NRW River Restoration Team on an Opportunity Catchment (OPC) project to identify river restoration opportunities in the Nant-Y-Fendrod catchment. Meetings ongoing to discuss the overlaps with Swansea CCs emerging proposals for an Ecology Park/Local Nature Reserve designation for land at Swansea Vale.	Noted, and aligned with GITA objectives.
NRW Swansea Bay opportunity catchment – mainstreaming GI multi-year project.	Noted, and aligned with GITA objectives.
Include more opportunities for open space and GI in the very south of the identified area, particularly within SA1. This would be welcomed due to the industrial nature and history of the area to make more visually appealing. GI enhancements should be made along active travel routes and surrounding some of the newer residential sites. The potential for a coastal park would be very much welcomed in the area.	Noted, and site specific projects like this should be prioritised through the GI Strategy.
National Landscape and Gower North-South Links	
Role of north Gower in attracting visitors is huge. Seasonality is a challenge. Widen the area of Gower to include Mawr. Huge challenge with public transportation for residents and visitors.	Noted, these are all key challenges for Gower.
Needs significant involvement from AONB teams and old RDP network. AONB/National Landscape Team involved in a push to do more nature recovery work within the National Landscape, so hopefully the updated management plan will be quite different.	Noted, the updating of the management plan should be aligned with the GIA and LDP2 to deliver objectives.
NRW Comments	
Recommend Gower Linkages Zone be refined to give priority to maintaining and enhancing Grassland and Woodland habitats.	Noted, this should be a focus of this GITA.
Recommend that Penllergaer Valley Woods is identified as a strategic GI hotspot in the GIA, being in close proximity to Strategic Development Site allocations, and offering opportunities for off-site GI provision to support grassland and woodland habitat projects.	The GIA does not go as far to identify GI 'hot spots', however, the maps for this and other areas show the key GI designations across the County.
Recommend that, for consistency with the emerging REN, Penplas SSSI is included within the Gower Linkages Zone, as a strategic connection for grassland habitats in the area.	Gower linkages GITA now includes Penplas SSSI.
Encourage engagement to identify potential partners to engage in the GIA with an interest in impacts and opportunities for GI and Ecosystem Resilience on their land or active in relevant projects.	Stakeholders have been identified for each GITA and future engagement on the GIA and GI Strategy should be used to flesh out other important stakeholders.
Query whether priority ecosystem service(s) be identified for each zone. How far can GIA guide policy to require specific types of GI in specific zones?	Priorities for GI have been identified for each GITA.
Could vision and objectives be colour coded to highlight the different GI services sought?	Priorities for GI have been identified for each GITA rather than colour coding the vision.

Comment Summary	Response (if needed)
Could vision and objective distinguish between actions more directly related land use planning interventions and those which rely upon collaboration with partners?	The GIA does not go as far as to subdivide the objectives/vision as suggested, as appropriate means of delivery will need to be established on a case-by-case basis.
Consider including objective to maintain/enhance tranquillity corridors - to align with NRW Landmap Tranquillity Mapping July 2024 and Gower National Landscape Dark Night Skies designation.	Reference to maintaining and enhancing these areas has been included in County-wide objectives.
Proposals to promote Y Mawr as a Regional Park are considered to go beyond the scope of the GIA, as land use planning interventions alone are unlikely to deliver the objectives. The proposal is perhaps more appropriate for a County GIA strategy, or for inclusion in a Strategic Development Plan as will require engagement of both neighbouring authorities and a range of public sector stakeholders.	Noted. The GIA sets out objectives for this substantial area of the County, with the specifics of any designation coming through the LDP2, GI Strategy and other mechanisms.
The GIA should ensure that appropriate references are made to Swansea Central Area: Regenerating our City for Wellbeing and Wildlife - Swansea with examples of types of land use interventions delivered to date. Green / living walls information - Swansea and Green roof information - Swansea.	It is beyond the scope of this GIA to provide an inventory of all GI in the County. However, many interventions have been delivered through the initiatives mentioned and proof of the benefits of GI to the County. The GI Strategy could consider expanding the application of this guidance more widely, and expanded use of the Green Space Factor Tool, as part of an SPG for development.
The GIA should recognise and build upon the extensive engagement and capacity building already achieved which has delivered significant GI in Swansea City Centre to date.	Noted and agreed.
GIA Vision and objectives should have regard to those of the Swansea Central Strategy which was developed as a result of extensive community engagement and gave rise to agreement of the 5 principles of GI.	The Swansea Central Area - Regenerating our City for Wellbeing and Wildlife document is very localised and focussed on the city centre. This document currently guides development in this location but could be turned into an SPG if desired and/or applied to other areas. The GI Strategy could consider expanding the application of this guidance more widely, and expanded use of the Green Space Factor Tool, as part of an SPG for development.



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