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**Natural
Resources
Wales**

The purpose and role of the Welsh Government Woodland Estate



Noddir gan
Lywodraeth Cymru
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Minister's Foreword

The woodlands that make up the Welsh Government's Woodland Estate (WGWE) are managed by Natural Resources Wales (NRW) on behalf of the people of Wales. They are some of our greatest natural assets and because they are in public ownership have a unique contribution to make. Welsh Government has set out its vision for woodlands in its document Woodlands for Wales. This statement goes further. It sets out why we need a public forest estate, restates our commitment to it for the long term and explains some of our key priorities for the estate as a publicly owned resource.

Welsh Government is committed to maintaining and investing in its woodland estate as a key publicly owned asset to be used for public good. So, I want to set out some key principles here about the good it will deliver over the next 25 years.

The first principle is that this is a woodland estate. It was acquired for that purpose through Act of Parliament. While NRW has wider objectives, and is able to hold land for other purposes, the publicly owned woodland estate land should remain as woodland. To support our woodland creation goals, the woodland area on the estate should be bigger in 25 years than it is today.

The second principle is that the estate will continue to

be managed in line with our commitment to the sustainable management of natural resources using the UK Forestry Standard as the benchmark. I expect NRW to retain independent certification of its forest management as clear evidence of that. This means committing to retain the Forest Stewardship Council® (FSC®) and Programme for the Endorsement of Forest Certification labels for the products of the woodland.

The third principle is that the estate should work for all the people of Wales. While NRW will have a central role as its managers, I expect them to continue to collaborate with others, especially with communities and those who have an interest in woodland and natural resources, to support the well-being of Wales.

The fourth principle is that the estate should contribute to prosperity for all people in Wales. As the single largest supplier of renewable wood products, the estate makes a key contribution to our prosperity and I expect its productive use to continue, although there will be times when we need to show restraint in our use to keep within sustainable limits. NRW should reinvest income from the woodland estate in its sustainable management and set out clear plans for its management. I want the



huge benefit of the free public access to the estate and the many other public goods it provides to be clearly explained when NRW sets out its annual report.

I am open to the possibility of reviewing the size and nature of the WGWE, for example to support new woodland creation, and the adoption of alternative management models, if these deliver more well-being benefits for Wales.

I encourage you to read the report and become involved in the story of the WGWE. They are our woodlands – mine, yours, and those of your families, neighbours, friends and colleagues. Please make the most of them and enjoy our woodlands of Wales.

Hannah Blythyn
Minister for Environment

Statement from NRW's Chair and Chief Executive

We are the proud custodians of the Welsh Government Woodland Estate (WGWE) and are committed to its management on behalf of the people of Wales. We welcome Welsh Government's pledge to maintain and invest in its woodland estate, and the Minister's setting of four clear and ambitious principles about the good it will deliver. The Minister's stated ambition that the woodland area on the estate should be bigger in 25 years time than it is today is a resounding endorsement of the role that woodlands play in Wales' well-being. We are ready to rise to a challenge which will boost confidence in the forest sector in Wales and beyond, supporting jobs and enterprise which are an essential component of a prosperous rural economy.

Based on the Minister's principles, this report sets out a clear purpose and role for the WGWE and ten key priorities for a bright future. It marks the next stage of the evolution of the WGWE, building on what has gone before and making it fit for the future. Our proven ability to adapt and respond to change will be key in realising and optimising the multi-purpose benefits that can be generated.

As a state forest manager, we are expertly positioned to drive forward management of the estate to deliver public goods that are valued by everyone.

We have a track record of running a successful commercial forestry operation alongside providing public access for recreation, supporting nature recovery and delivering renewable energy projects. Looking ahead, we will continue to demonstrate market leadership, promote sustainable forestry management skills and professionalism and deliver excellence in our pursuit of the sustainable management of natural resources (SMNR).

Whilst the ambition and the opportunities are welcomed, our delivery is set against a backdrop of increasing impacts from a changing climate, from pests and pathogens, and from land use pressures and there are greater demands on public finance. We will need to grasp the initiative to secure new financial opportunities, so we are able to continue to invest in the sustainable management of the estate and maximise the provision of services from this resource to the people of Wales. We appreciate the public investment we have received and are hoping for a longer-term commitment to grant-in aid, alongside exploring new commercial income opportunities and new more collaborative management models, to deliver the Welsh Government's ambition.



Diane McCrea - Chair
Natural Resources Wales



Clare Pillman - Chief Executive
Natural Resources Wales

We are determined to make the WGWE the best it can be and were reminded what a fantastic resource it is on a recent visit to the cathedral-like Douglas fir walk at our Coed y Brenin visitor centre. Working collaboratively with the people of Wales, we know it will continue to be a treasured feature of the Welsh landscape, a source of inspiration and creativity in the way that it is managed and used, and a critical generator of wide-ranging public goods.

1. Introduction

The Welsh Government Woodland Estate (WGWE)¹ is the term used to describe the woodlands in Wales that are owned by Welsh Ministers on behalf of the nation. Welsh Ministers have delegated responsibility for management of the WGWE to Natural Resources Wales (NRW).

We look after and manage the WGWE so that it makes a valuable contribution to all our lives. We do this by working with the forestry sector, renewable energy providers, local businesses, communities and charitable organisations. By working with others, we aim to optimise the multiple environmental, economic, social and cultural benefits that are generated from the woodlands in our care and ensure the flow of these across Wales and globally.

The WGWE forms part of the iconic landscapes of Wales, provides timber which supports our economy and rural communities, provides world-class opportunities for active recreation, enriches our culture and heritage, presents opportunities for tranquil reflection and a connection with nature, and supports our rural communities and small businesses.

These are some of the obvious well-being benefits but there are many more: the land and the trees that grow on the WGWE lock-up carbon, improve air and water quality, help reduce the risk of flooding and drought and are important habitats for wildlife, giving us all a better quality of life.

In this document, we:

- explain the purpose and role of the WGWE;
- identify the key priorities for the WGWE;
- provide an overview of the WGWE;
- identify the main challenges and opportunities looking ahead;
- explain how the purpose and role will be delivered;
- explain how we will monitor progress over time.

In a series of supporting case studies, we demonstrate the multiple well-being benefits that are generated by the WGWE. Each case study describes how the mix and level of objectives, services and benefits vary from every woodland on the WGWE.

As an organisation, we are committed to being as transparent as possible in our decision-making and we explain how we will do this in relation to management of the WGWE to deliver its purpose and role on behalf of the people of Wales.

¹ We are also responsible for managing National Nature Reserves (NNRs) and flood risk management assets around Wales.

2. The purpose and role of the WGWE over the next 25 years

2.1 Introduction

Originally, the WGWE was created to provide a strategic timber reserve but the legislative and policy framework has changed and grown. Since devolution, Wales has a distinctive voice in describing its ambition for the part our woodlands play in **Taking Wales Forward** to be more healthy and active, prosperous and secure, ambitious and learning, and united and connected.

The purpose and role of the WGWE is framed in the context of:

- The **UK Forestry Standard**, the reference standard for sustainable forest management in the UK;
- **Welsh Government’s Woodlands for Wales** strategy which sets a 50-year vision for all woodlands in Wales; and
- The legislative framework in Wales, principally the Well-being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016.

The long-term nature of forestry means that a consistent approach is needed if current and future generations are to benefit in full. It also means that future conditions, such as climate change, need to be considered when identifying risks and opportunities. The purpose and role defined in this document reflects current Welsh Government priorities. It builds on and is respectful of what has gone before but is also flexible and forward looking to accommodate changes that might lay ahead.

2.2 Purpose

The purpose of the Welsh Government Woodland Estate is as a woodland resource that generates environmental, economic, social and cultural well-being benefits for the people of Wales and beyond, now and for future generations.

The well-being benefits that derive and flow from woodlands are identified in Table 1, grouped under the seven **Well-being Goals for Wales**.

Table 1

Well-being goal	Contribution of trees and woodland on the WGWE
A resilient Wales	<ul style="list-style-type: none"> ● Contributes to biodiversity. ● Helps to regulate climate stress at a local level. ● Provides carbon sequestration. ● Contributes to flood risk management and mitigates against low river flows. ● Safeguards soils and supports nutrient cycling. ● Improves air quality. ● Reduces noise pollution. <p>Note: the effectiveness of these is dependent on the nature, extent, condition and resilience of woodland ecosystems.</p>

A prosperous Wales	<ul style="list-style-type: none"> ● Provides fibre that is used in the production of material goods, for the supply of construction and building materials, for manufacturing and processing industries and to produce fuel and energy. ● Provides employment and supports the rural economy. ● Provides opportunities for education and skills development. ● Provides resilience to natural disasters, such as flooding and heatwaves. ● Provides opportunities for recreation and tourism which supports inward investment and provides employment. ● Provides opportunities for new revenue streams.
A healthier Wales	<ul style="list-style-type: none"> ● Provides opportunities for recreation, learning and enjoyment of the natural world which improves physical health and mental well-being. ● Contributes to flood and drought risk management which has a positive effect on mental health and well-being. ● Improves air quality.
A more equal Wales	<ul style="list-style-type: none"> ● Provides open and free access to enjoy recreation and opportunities for learning. ● Helps support children's learning and play which can improve their cognitive development.
A Wales of cohesive communities	<ul style="list-style-type: none"> ● Contributes to a sense of pride in community and place. ● Provides greenspace for community-based activities such as recreation, education, enjoyment of wildlife and tranquillity. ● Provides opportunities for community participation in natural resource management through woodlands which may increase social capital, improve community cohesion and reduce antisocial behaviour.
A Wales of vibrant culture and thriving Welsh language	<ul style="list-style-type: none"> ● Fosters a sense of community and place associated with locally distinctive trees and woodlands and their intrinsic cultural value ● Provides opportunities for participation in arts, sports, learning and recreation by both residents and visitors.
A globally responsible Wales	<ul style="list-style-type: none"> ● Helps to mitigate the impact of our carbon footprint by keeping carbon stored in soils and biomass. ● Reduces our carbon footprint through the supply and use of locally grown and processed timber. ● Helps deliver against international commitments on biodiversity, e.g. protection of species and habitats of European importance (Bern Convention). ● Supports education and learning linked to global responsibility and citizenship.

2.3 Role

The role of the Welsh Government Woodland Estate is to maintain, conserve and appropriately enhance provisioning, regulating, cultural and supporting ecosystem services from woodlands in Wales.

Ecosystem services² are identified in Table 2.

Table 2

Type of ecosystem service	Components
Provisioning ecosystem services	<ul style="list-style-type: none"> ● Wood and non-wood products. ● Water supply (interception of rain, mist and fog). ● Genetic resources (seed orchards from locally adapted provenances). ● Biodiversity (habitats for flora and fauna).
Regulating ecosystem services	<ul style="list-style-type: none"> ● Climate regulation (carbon capture and storage [sequestration], protection from or mitigation of the effects of climatic change). ● Hazard regulation (soil erosion, flooding, drought). ● Detoxification and purification of soils, air and water³. ● Pollination.
Cultural ecosystem services	<ul style="list-style-type: none"> ● Health (mental and physical well-being). ● Nature / landscape connections. ● Education and learning. ● Economy (employment, recreation, tourism). ● Social development and connections (community participation and engagement). ● Symbolic, cultural and spiritual significance of trees and woodlands.
Supporting ecosystem services	<ul style="list-style-type: none"> ● Primary production (fixation of carbon dioxide by photosynthesis, resulting in plant growth and oxygen production). ● Soil formation. ● Nutrient cycling. ● Water cycling. ● Biodiversity (contribution to woodland dynamics, including providing habitats for pollinators and maintaining below-ground decomposition processes that underpin soil formation and nutrient cycling).

There is a direct link between ecosystem services (Table 2) and well-being benefits (Table 1), and this is explored in the [State of Natural Resources Report \(SoNaRR\) \(2016\)](#).

² UK NEA, 2011 & 2014

³ Trees can capture and absorb (scavenge) pollution, including diffuse pollution, from soils, water and the atmosphere, improving the quality of each. However, those pollutants may then be transferred into the water supply. Trees, woodlands and forests can therefore have both positive purifying and negative impacts on water quality that are species, site and management dependent

3. Key priorities for the WGWE

In keeping with the purpose and role, ten key priorities⁴ for the WGWE over the next 25 years have been identified. They support the four principles outlined in the Minister's Foreword as follows:

The **first principle** is that the woodland area of the WGWE should be bigger in 25 years than it is in 2018:

- **Key priority 1:** If management actions result in a permanent loss of woodland cover on the WGWE⁵, there will be new woodland creation to compensate. Furthermore, opportunities will be taken to increase the woodland area of the estate, through land acquisition and new woodland creation ventures.

The **second principle** is that management of the WGWE will comply with the UKFS and forest certification will be maintained:

- **Key priority 2:** The WGWE will continue to be managed sustainably as evidenced by independent forest certification⁶.
- **Key priority 3:** The WGWE will continue to be managed to improve its extent, condition, diversity and connectivity, allowing it to adapt to extreme weather events and predicted climatic change and improve its resilience to pests and diseases.
- **Key priority 4:** The biodiversity of the WGWE will be maintained, conserved, and if appropriate enhanced, especially in relation to designated sites, priority habitats and species, and the water quality of wooded catchments.
- **Key priority 5:** There will continue to be prioritised programmes of restoration of Plantations on Ancient Woodland Sites (PAWS) and afforested deep peat on the WGWE and careful management of all ancient woodland sites and individual ancient, veteran and heritage trees.

The **third principle** is that the WGWE will support the well-being of Wales, including through collaboration with others:

- **Key priority 6:** There will be renewable energy provision on the WGWE and the stocks of stored carbon will be optimised to help meet Wales' decarbonisation targets.
- **Key priority 7:** Access and recreation opportunities on the WGWE will be developed and maintained to support mental and physical health and well-being, providing high quality settings for education and learning and to further Wales' appreciation of its culture and heritage.

⁴ These are not numbered in order of importance – each carry equal weight.

⁵ Significant permanent woodland removal, e.g. for development, landscape improvement or priority habitat restoration programmes rather than smaller, integral open ground creation in a forest context consistent with the UKFS.

⁶ FSC® licence code is FSC – C115912

- **Key priority 8:** A place-based approach to management of the WGWE alongside the pursuit of national priorities will contribute more to community resilience and local well-being, by being a good neighbour and exploring shared management and collaborative opportunities.

The **fourth principle** is that the productive use of the WGWE will be maintained within sustainable limits and contribute to prosperity:

- **Key priority 9:** The overall productive potential (in terms of timber, wood products and other benefits) of the WGWE will be maintained and if appropriate, enhanced, to support the continued sustainable growth of the forestry sector in Wales and beyond.

And underpinning all the principles:

- **Key priority 10:** The WGWE will continue to support research and development and the trialling of novel approaches that further understanding of Sustainable Management of Natural Resources (SMNR), ecosystem service provision and well-being, including in relation to the adoption of nature-based solutions.

Taken together, these ten key priorities support the principles of SMNR⁷ as defined in the Environment (Wales) Act 2016 and will ensure that the WGWE contributes to delivery of the twenty outcomes detailed in the Woodlands for Wales strategy.



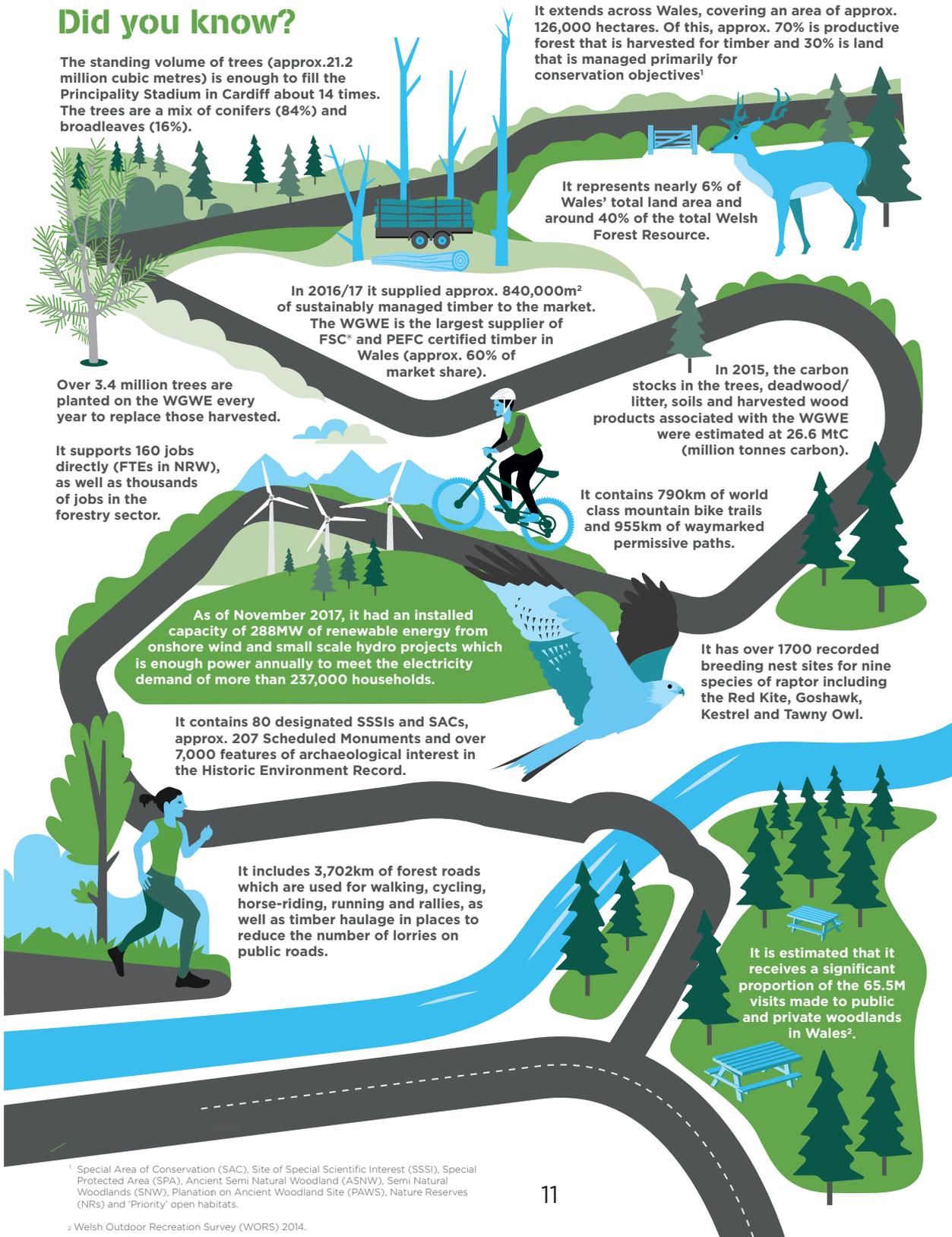
⁷Adaptive management, long term, scale, building resilience, multiple benefits, preventative action, evidence, collaboration and engagement, public participation

4. An overview of the WGWE

The WGWE extends across Wales, covering an area of 126,000 hectares. It represents nearly 6% of Wales' total land area, and around 40% of the Welsh Forest Resource (306,000 hectares). Figure 1 highlights some interesting facts about the multiple benefits it provides. A map showing the location of the WGWE across Wales is provided at Annex 1.

Figure 1:

The Welsh Government Woodland Estate: Did you know?

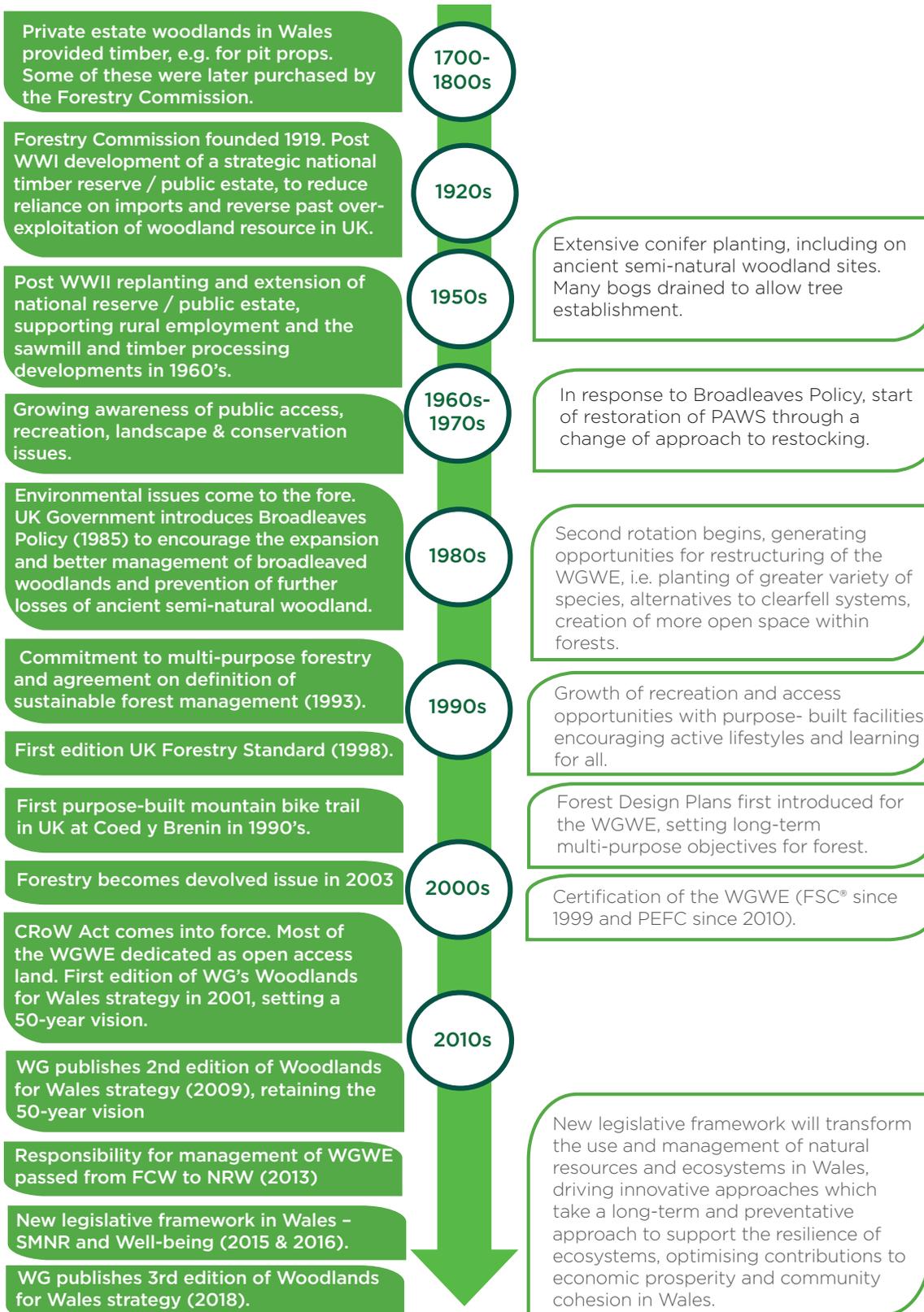


¹ Special Area of Conservation (SAC), Site of Special Scientific Interest (SSSI), Special Protected Area (SPA), Ancient Semi Natural Woodland (ASNW), Semi Natural Woodlands (SNW), Planation on Ancient Woodland Site (PAWS), Nature Reserves (NRs) and 'Priority' open habitats.

² Welsh Outdoor Recreation Survey (WORS) 2014.

The story of the WGWE goes back a century. Over this period the purpose, role and management of the WGWE has changed in keeping with Government policies and priorities of the day. Figure 2 is a timeline of key changes that have determined the history of the WGWE to the present day and the affect these have had.

Figure 2: Timeline of changes affecting the WGWE



5. Challenges and opportunities looking ahead

5.1 Retaining a public forest estate

The Minister has stated her commitment to retaining and investing in the WGWE as a key publicly owned asset to be used for public good. Furthermore, that the woodland area on the estate should be bigger in 25 years than it is today and that alternative management models could be considered if they deliver more well-being benefits for Wales.

There is a spectrum of alternative management and ownership options that could be matched to any part of the WGWE and the combination of outcomes sought. These include commercial activities, joint ventures, community ventures and leasing arrangement on a range of spatial scales and time periods to suit the purpose and risk appetite whilst optimising the flow of benefits. What is clear is that the WGWE does not have to be considered a static entity, in terms of its size and location, future options could include the purchase of additional land to create more woodland, or changes to the portfolio of land that comprises the WGWE.

Globally average public ownership and management of forests is around 70% and compared to many European countries, Wales has a relatively moderate level of public ownership with the WGWE comprising approximately 40% of all woodlands in Wales. However, the land leased, owned or managed by community woodland groups in Wales amounts to just 0.5% of the total⁸. Wales has an ambition for greater community involvement in decision-making and has identified the WGWE as an opportunity for community-based enterprise. With the move to place-based working using Area Statements and through our statutory membership of Public Service Boards to deliver local well-being objectives, there are now more opportunities for us to work with others to maximise the public benefits that flow from the WGWE.

5.2 Managing conflicting priorities to maximise benefits

Inherent in management of the WGWE to deliver its purpose and role are tough decisions about what is done, where and how. This is because there are competing and conflicting priorities that need to be reconciled to simultaneously manage productive forestry, nature recovery, safe access, recreation opportunities, and renewable energy projects. These competing and conflicting priorities arise because the WGWE is a public asset and must be managed to satisfy the multiple demands made of it from a public policy, accountability and legislative perspective.

⁸Woodlands for Wales Indicator report, 2015-16. <https://gov.wales/docs/statistics/2016/161220-woodlands-wales-indicators-2015-16-en.pdf>

This is often described as the need to achieve a balance without explicitly quantifying the trade-offs. Table 3⁹ identifies six examples of trade-offs and synergies in the provision of ecosystem services and well-being benefits provided by the WGWE.

Table 3

	Provisioning services	Regulating services	Cultural services
Provisioning services		Synergy 1: Increased growth and production can increase carbon storage.	Synergy 2: Thinning of woodland to improve its diversity can open access for visitors and improve habitats for wildlife.
Regulating services	Trade-off 1: Increased harvest reduces carbon sink/store unless products are long-life.		Synergy 3: Restoration of riparian woodland to aid flood regulation may enhance landscape and opportunities for recreation such as fishing.
Cultural services	Trade-off 2: Increased production may reduce the quality of the woodland environment for recreation (e.g. increased traffic and machinery) and reduce the visual quality (e.g. use of clearfells).	Trade-off 3: Most efficient carbon capture may be with novel crops/species that are not familiar or liked.	

In the future, the ten key priorities identified for the WGWE will inform the management of trade-offs and synergies. There will be financial challenges ahead. For example, finding different and more profitable ways to manage the WGWE to generate the income required to realise Welsh Government’s ambition against a backdrop of increasing impacts from pests and pathogens.

The spatial scale of action will be important. For example, it may be that intensifying timber production in some areas of the WGWE by using improved, faster-growing variants of tree species will offset reduced production in others due to restoration of PAWS. As NRW moves to place-based working there will be opportunities to manage delivering the purpose and role of the WGWE with local needs and priorities.

⁹Ref: Adapted from Table 8.13, UK NEA.

5.3 Our changing climate

The climate globally and in Wales is predicted to change with wide-ranging implications for all ecosystems, including woodlands. Some of the projected changes are potentially so significant that they could completely change the extent, nature and condition of the woodlands and forests that we have in Wales, both recently planted and ancient in origin, and this will have an impact on the ecosystem services that we derive from them.

The second UK Climate Change Risk Assessment¹⁰ identified several main risks for forestry in Wales related to changes in:

- forestry productivity and land suitability;
- the type, extent, frequency and impact of pests, pathogens and invasive species; and
- the frequency and/or magnitude of extreme weather and wildfire events.

In relation to pests and diseases, the condition of the WGWE has already been heavily affected. *Phytophthora ramorum* is the most significant tree disease to affect woodlands in Wales in recent years¹¹ and it is continuing to spread. It has caused the widespread death of larch, a significant timber-producing tree species, and is a potentially serious threat to other trees and plants including our most valuable softwood timber species. Chalara Ash dieback (*Hymenoscyphus fraxineus*) is also affecting trees on the WGWE. Whilst there has been extensive felling of infected larch trees to try and limit the spread of *Phytophthora ramorum*, this has presented the opportunity of allowing more widespread and faster restructuring of some forest areas through the replanting of a more diverse selection of tree species, making the WGWE more resilient to future threats

Projected climatic change will also affect the many indirect ecosystem services and well-being benefits that derive from woodlands. For example, within the WGWE there are historic assets containing evidence of past human use. Some of the predicted effects of climatic change such as soil erosion, hill slope instability, land-use change and changes in woodland management practices could damage individual historic features on the WGWE.

The predicted changes in the distribution of tree species in Wales will cumulatively, if not individually, have a great impact on our wooded landscapes including those of the WGWE. For example, the high emissions scenario model for Sessile oak indicates that large areas of Wales currently suitable for our native oak will become unsuitable by 2080. Loss of oak from these sites would alter the character and condition of these woodlands and the features they contain. The decline of this iconic tree would be a significant cultural loss as well as impacting on our native biodiversity.

¹⁰Climate Change Risk Assessment 2017: Summary for Wales <https://www.theccc.org.uk/uk-climate-change-risk-assessment-2017/national-summaries/wales/> .

¹¹As of 1 December 2017, approximately 7,838 hectares of larch on the WGWE had been found to be infected with *Phytophthora ramorum*

The WGWE has a role to play in helping society and natural resources to adapt to climate change, and in mitigating the effects of climate change. The good news is that work has already started:

- We are improving its structural and tree species diversity. This will make the woodland and the ecosystem services that derive from it more resilient and better able to withstand the effects of climatic change.
- We have evaluated its net carbon status¹², accounting for both carbon sequestration and greenhouse gas emissions. Our improved understanding will help inform management decisions to protect existing carbon stocks and enhance sequestration, for example by restoring and expanding key peatland and woodland habitats. This will support Wales' ambition to accelerate decarbonisation.

5.4 Biodiversity

Wales, like much of the rest of the UK and Europe, continues to face biodiversity loss. We know that 55% of species and 75% of habitat features on Welsh Natura 2000 sites are in unfavourable condition. In [SoNaRR \(2016\)](#) we reported that no ecosystem in Wales had been assessed as having 'good' resilience which means that all have a reduced ability to adapt to challenges such as climate change, invasion by undesirable species and habitat fragmentation. If this continues then our biodiversity will continue to decline and as a result we may not have access to clean air, water, food and raw materials in the future.

The legislative framework in Wales, particularly Section 6 of the Environment (Wales) Act 2016¹³, and the strategy set out in the Nature Recovery Action Plan¹⁴, represent the Welsh Government's commitment to change the approach to the use and management of natural resources and ways of working to halt the decline in biodiversity and promote the resilience of ecosystems.

Ecosystem resilience is the ability of our natural environment to cope with pressures, disturbances and change, either by resisting them, recovering from them or adapting to them. Resilience is a function of the extent, diversity, connectivity, condition and adaptability of an ecosystem. Biodiversity is an essential underpinning element of all resilient ecosystems. We know that to reverse the decline in biodiversity we need to build resilience in our ecosystems and to do this we need to manage the natural environment more sustainably and we need to work differently.

We have a statutory duty to ensure that building ecosystem resilience is a primary objective across all our functions, including management of the WGWE. As explained in this document, one of the roles of the WGWE is

¹²[The Carbon Positive Project](#)

¹³ This places a duty on public authorities to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of those functions

¹⁴ The Nature Recovery Plan for Wales: Setting the course for 2020 and beyond (December 2015).

to maintain, conserve and appropriately enhance the biological diversity of Wales' woodland ecosystems, which in turn will build ecosystem resilience.

Both directly, and through partnership working, we are already doing a great deal to protect, manage and improve biodiversity, for example through the management of protected sites and species, reducing the impact of invasive non-native species, PAWS restoration and woodland habitat network improvement projects.

5.5 Cultural and social well-being

Alongside environmental benefits, the purpose and role of the WGWE is to generate social, cultural and economic well-being benefits, in terms of employment, recreation and access, mental and physical health, education, learning and community participation.

In managing the WGWE, especially our running of visitor centres, we provide opportunities for many activities ranging from walking to elite sport; from forest school to teacher training and apprenticeships; from volunteering in a litter pick to community, social and commercial enterprise and management. We also facilitate the use of the WGWE by other organisations to pursue their aims¹⁵. Furthermore, the trees and woodlands on the WGWE contribute to the filtering of particulates to improve air quality, flood and drought risk mitigation through strategic planting opportunities and noise mitigation and micro climate benefits such as reduced wind speed, shade and cooling, close to where people live and work. All these benefits contribute to human health and well-being in the widest sense.

With increasing levels of obesity in Wales, and a rise in associated health problems such as coronary heart disease, diabetes, and certain types of cancer, the need to increase physical activity levels has never been greater. The Future Generations Commissioner has prioritised health and well-being improvement, through increasing opportunities to be more physically active. Access to recreational opportunities on the WGWE has in the past made an important contribution to this agenda and will continue to do so in the future. Areas of the WGWE in the South Wales Valleys have sometimes been referred to as the 'largest urban forest in Europe' given their location close to where many people live and the opportunities they provide for health and well-being

Outdoor recreation provides benefits for both health and the economy. Health benefits are particularly associated with frequent participation in activities close to home (doorstep activities), whilst economic benefits are derived more from days out further afield. A key challenge is to find the right balance of support for both these different types of recreation, spatially prioritising our approach to ensure the right thing in the right place.

¹⁵ For example, Actif Woods Wales and Public Health Wales

Recent evidence¹⁶ shows that participation in outdoor recreation is linked to attitudes and behaviours that are related to caring for the environment. More work is needed to understand this connection, and to improve future communications to increase awareness and encourage behaviour that supports the environment. We are developing a suite of position statements that cover recreational, educational and other activities on the WGWE. By setting out in a clear and consistent way how we will behave, and how we expect others to behave, as well as setting out rights and responsibilities, these statements will make it easier for people to use the WGWE. They will also help us to provide a coherent service across Wales, making sure we treat people fairly and consistently.

Encouraging and promoting access to the WGWE means we sometimes have to manage conflicts and unwanted behaviour. Illegal and antisocial activity associated with forests, woodlands and trees is a growing concern. We have to deal with the building and use of illegal mountain bike trails, illegal off-roading, wild fires started deliberately and rising incidences of fly-tipping. Moving forward, we need to work creatively and collaboratively to address these problems, building on the existing partnerships with crime prevention officers and community groups, but also look for new opportunities linked to Area Statements and local Well-Being Plans.

5.6 Money & public finances

Annex 2 provides a high-level summary of income and expenditure (costs) relevant to the WGWE (to year end of 31 March 2017).

Income and expenditure associated with managing the WGWE varies from forest to forest. Some forest blocks are more expensive to manage than others based on the site location, terrain, infrastructure and past management decisions and not all are suitable for other income-generating activities. Dependent on the objectives set for the forest, such as species conservation, habitat restoration or areas of high recreational use, liabilities and costs can be high.

Overall our management of the WGWE to deliver multi-purpose benefits is under pressure due to reduced public funding. Consequently, we are increasingly having to make difficult decisions about where and how money is spent and are continuously looking for new and innovative ways of raising income or working in partnership with others to share the costs. Whilst the Minister has stated her commitment to retaining and investing in the WGWE, no specific financial commitments can be made for the next 25 years. To deliver the priorities identified in this report, continued public investment alongside new commercial income opportunities and new delivery models will be needed.

¹⁶ Welsh Outdoor Recreation Survey (2016), NRW.

5.6.1 Costs

Managing the WGWE costs money. Costs are associated with staff salaries and all the activities we manage, including for example tree harvesting and planting, plant protection, tree disease management, maintenance of forest roads and recreation infrastructure, provision of safe open access, and combating illegal activities such as fly-tipping and off-roading.

5.6.2 Income, revenue and Grant-in-Aid

Managing the WGWE generates income. This income is principally from timber sales but also renewable energy generation and recreation. Commercial forest management is essential to support the flow of many other well-being benefits from the WGWE. For example, commercial forest management requires a network of roads and rides and this infrastructure supports opportunities for access, recreation and learning.

Because of the nature of the WGWE commercial forestry in some forest blocks is at times loss-making: it costs more to extract the timber than the revenue generated from its sale. However, in the context of delivering its purpose and role and the objectives and principles of SMNR, the generation of profit is important but not always the most important criteria. Traditional accounting processes also fail to identify and quantify the wider well-being benefits that are generated including the stimulus of public land generating private sector economic growth, enterprise and innovation.

In terms of income from our timber sales, the wood fibre market is dynamic, demand-led and global in nature. Price reflects how the market responds to changes in availability and demand at a national and international level. Changes in price can have a significant impact on import, export and local purchasing decisions and choices about the utilisation of wood fibre for various end-uses. This in turn affects the income from timber sales. As explained in our [Timber Marketing Plan \(2017-22\)](#), we have restructured our timber marketing activities to make them more responsive to market fluctuations, allowing us to be more reactive to positive trading conditions whilst ensuring a base flow of timber volume to the sector to support continued processing capacity and employment opportunities.

Commercial activities on the WGWE provide us with an important income stream at a time when public sector funding is reducing. As well as providing us with additional income, our commercial activities also generate a positive economic impact in Wales, supporting and creating jobs and enterprise, enabling others to participate in and benefit from the sustainable management and use of natural resources and contributing to the development of a Green Economy. Our [Enterprise Plan](#) has milestones for income generation that exemplify SMNR, working with partners and communities.

NRW receives Grant-in-Aid (GiA) - public funding - from Welsh Government for management of the public forest estate. However overall levels of public funding are declining and the total amount of GiA that NRW receives is

no exception, including the portion made available for the stewardship of the WGWE. Unless NRW's commercial income can increase over time to compensate for this reduction in GiA, there will be limits on how fast Welsh Minister's ambitions can be met, and how frequently and to what quality various public goods and services are provided.

5.6.3 Capital value

Every five years, we commission an independent full valuation of the WGWE encompassing both growing timber stocks and the value of the land per se. This is based on an inspection of a sample of forests and extrapolation of the data for the whole estate, together with an analysis of market information and trends. In the intervening years, the valuer provides an annual update based on market conditions. The valuation figure feeds into our annual report and accounts.

As at 31 March 2017, the capital valuation of the WGWE was £777.8 million. This was based on an annual market update following the last full valuation in March 2016.

5.6.4 Natural resource accounting

The WGWE's true value is much more than the revenue from our timber harvesting, enterprise and recreation activities and its worth as a capital asset. It provides a myriad of benefits, some of which we can quantify but many of which we can't. Forest blocks comprising the WGWE vary in terms of the value of their non-market ecosystem services. For example, a forest on a steep slope may be more difficult and costly to manage, but of great importance for erosion control and downstream water quality. This is why it's important to try and capture the wider value of the WGWE.

A [recent study](#), commissioned by the Welsh Government and completed by Forest Research, estimated the value of all woodlands in Wales in the context of four specific ecosystem goods and services: timber extraction, carbon sequestration, recreation and air quality improvement. The indicative total annual value of the four woodland ecosystem services was just over £600 million. Of the four services, air quality improvements due to pollution removal was the largest, followed by carbon sequestration, recreation and then timber production. As the area of the WGWE accounts for around 40% of the total Welsh Forest Resource, a significant proportion of these benefits derive from the WGWE.

This type of analysis is called natural resource accounting. It is an increasingly useful way of helping to make choices based on the likely impact these have on the flow of benefits that could help or hinder societies' well-being now and in the future. It illustrates that choices should not just be based on economic assessment but the cost or benefit to society and the environment.

In managing the WGWE to deliver its purpose and role, it will be increasingly important to recognise the significant contribution it makes to Wales' overall carbon budget. Market mechanisms for measuring, valuing and trading carbon are developing rapidly and are likely to feature ever more strongly in decision making. In the long-term management of the WGWE it will be important to ensure that the stocks and flows of carbon do not deteriorate and that opportunities are taken to improve the contribution that soils, trees and wood products make. This includes finding innovative ways to mobilise the potential capital values associated with new markets for carbon and other well-being benefits, for example to pay for the creation of new woodlands.

The development of natural capital accounts is still at a very early stage, with the methodology and datasets used still under review and subject to change, and the estimates subject to various degrees of uncertainty due to gaps in data and evidence. However, the technique will help improve understanding about the true value of the WGWE and where management actions, choices, decisions and investment should be prioritised to help meet its purpose and role.

We have started a project to produce a dedicated set of natural resource accounts for the WGWE and hope to publish these alongside our Annual Report and Accounts in future years



6. Delivery mechanisms

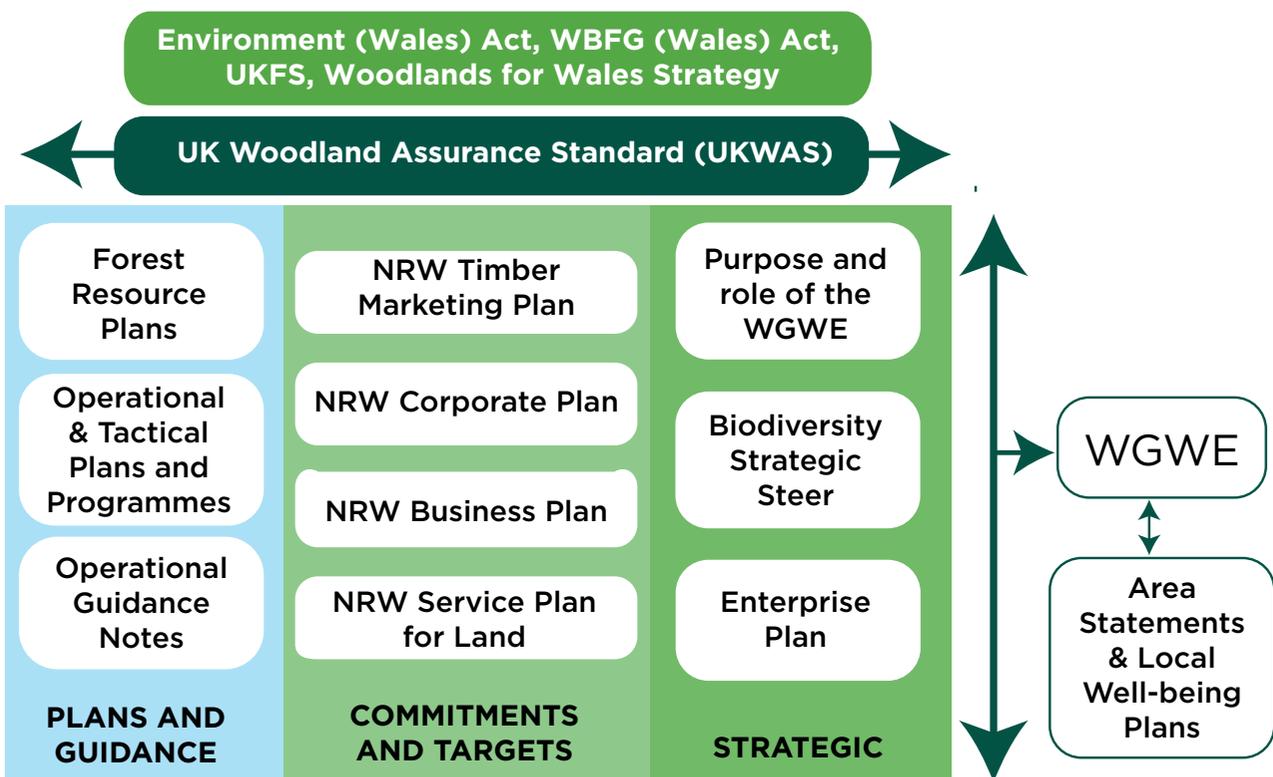
6.1 Our internal governance

We have a key role to play in delivering the purpose and role of the WGWE and realising the ten priorities that have been identified.

Internally, our programme of work will be generated based on commitments made in a suite of corporate and operational management documents.

Figure 3 explains how they all fit together.

Figure 3: NRW delivery framework for the WGWE



There is a clear hierarchy of detail in these documents: some provide strategic direction for the whole of NRW (e.g. Biodiversity Strategic Steer); some contain corporate commitments for the whole of NRW (e.g. Corporate Plan); some contain detailed costed proposals for operational delivery (e.g. Service Plan for Land); and some provide area-based information on forest blocks (e.g. Forest Resource Plans). There is a flow of information and evidence up and down through this hierarchy to allow the reporting of progress.

There are, and may be, delivery targets relevant to the WGWE in any of these documents. Our Service Plan for Land, agreed with Welsh Government, is the key document that brings everything together of relevance to the WGWE. It outlines a forward look and detailed operational delivery plan for the WGWE, on a rolling one to five-year basis. It details the resources,

budget, performance reporting and monitoring requirements needed to deliver an affordable level of service against all commitments, targets and management actions.

The Service Plan for Land is also linked to maintenance of our forest certification. It is a requirement of our ongoing certification that the purpose and role of the WGWE is clear and we have a fully costed delivery plan.

6.2 Collaboration and engagement

As we are managing the WGWE for the well-being of Wales, we will also increasingly look to collaborate with others to achieve this.

We need to improve existing and find new ways to work with others to maximise the well-being benefits that are generated from the WGWE. It is not just about us managing the WGWE for us and others, it is about us *in collaboration with others* managing the WGWE to support the well-being of Wales. We want to be a catalyst of change both within and beyond the boundaries of the WGWE.

In keeping with the requirements of the Environment (Wales) Act and Well-being of Future Generations (Wales) Act, we will look to engage and collaborative with others to help determine how we can:

- Balance short-term needs with the need to safeguard the ability to also meet long-term needs;
- Balance local needs (place-based decisions) with national needs and priorities in relation to management of the WGWE;
- Act to prevent problems occurring or getting worse which may help meet the objectives of managing the WGWE;
- Maximise our contribution to Wales' well-being goals through our pursuit of SMNR;
- Consider what impact our activities have on the objectives of other public bodies and work in an integrated and collaborative way to deliver multiple environmental, economic, social and cultural well-being benefits;
- Reflect the diversity of local areas which the WGWE serves, as well as Wales;
- Use evidence from a wide range of sources and gather evidence in respect of uncertainties; and
- Be adaptive to change by being attuned to the views of stakeholders, beneficiaries and users of the WGWE.

Area Statements will be a key mechanism for engagement and collaboration, as will our work with Public Services Boards on local Well-being Plans. Exactly how we engage and collaborate will continue to emerge and develop over time.

7. Monitoring progress

As an organisation, NRW has an overarching corporate performance framework which is the sum of the indicators, measures and targets across all our plans which we use to monitor our performance and see what difference is being made to the natural environment in Wales due to actions by us and others. There is also SoNaRR which will report on the contribution that all Welsh woodlands make towards SMNR on a rolling five-year basis.

However, it is helpful to have something more specific for the WGWE to monitor, assess and report progress, by us and others, against delivery of the purpose and role and the ten key priorities. We have therefore developed a set of performance indicators which will allow us to assess progress over time against a baseline year (2018/19). We will produce an annual 'snapshot' report so the direction of travel is clear.

Table 4: Performance indicators for the WGWE.

Key priorities	Performance Indicator	Desired trend
Extent	<ul style="list-style-type: none"> Wooded area of the WGWE 	Maintain at or above level in 2018/19
Sustainable forest management	<ul style="list-style-type: none"> Independent forest certification 	Maintain
Ecological resilience	<ul style="list-style-type: none"> Structural diversity (areas managed by clearfell / non-clearfell) Tree species diversity Genetic diversity (under development) Others (to be developed) 	Increase ¹⁷
Pests and diseases	<ul style="list-style-type: none"> Extent of <i>Phytophthora ramorum</i> and Chalara Ash dieback Extent of other pests and diseases on WG's Tree Health Strategy watch list 	Manage the damaging impacts
PAWS restoration	<ul style="list-style-type: none"> Hectares of PAWS restored 	Increase
Afforested deep peat	<ul style="list-style-type: none"> Hectares of peat restored 	Increase
Renewable energy	<ul style="list-style-type: none"> Renewable energy generation (wind and hydropower) 	Maintain or increase
Carbon stocks	<ul style="list-style-type: none"> Carbon balance for the WGWE 	Maintain or increase
Recreation and access	<ul style="list-style-type: none"> Under review - to be developed 	Increase

¹⁷ There are limits - some coupes can only be clear-felled due to site / access constraints

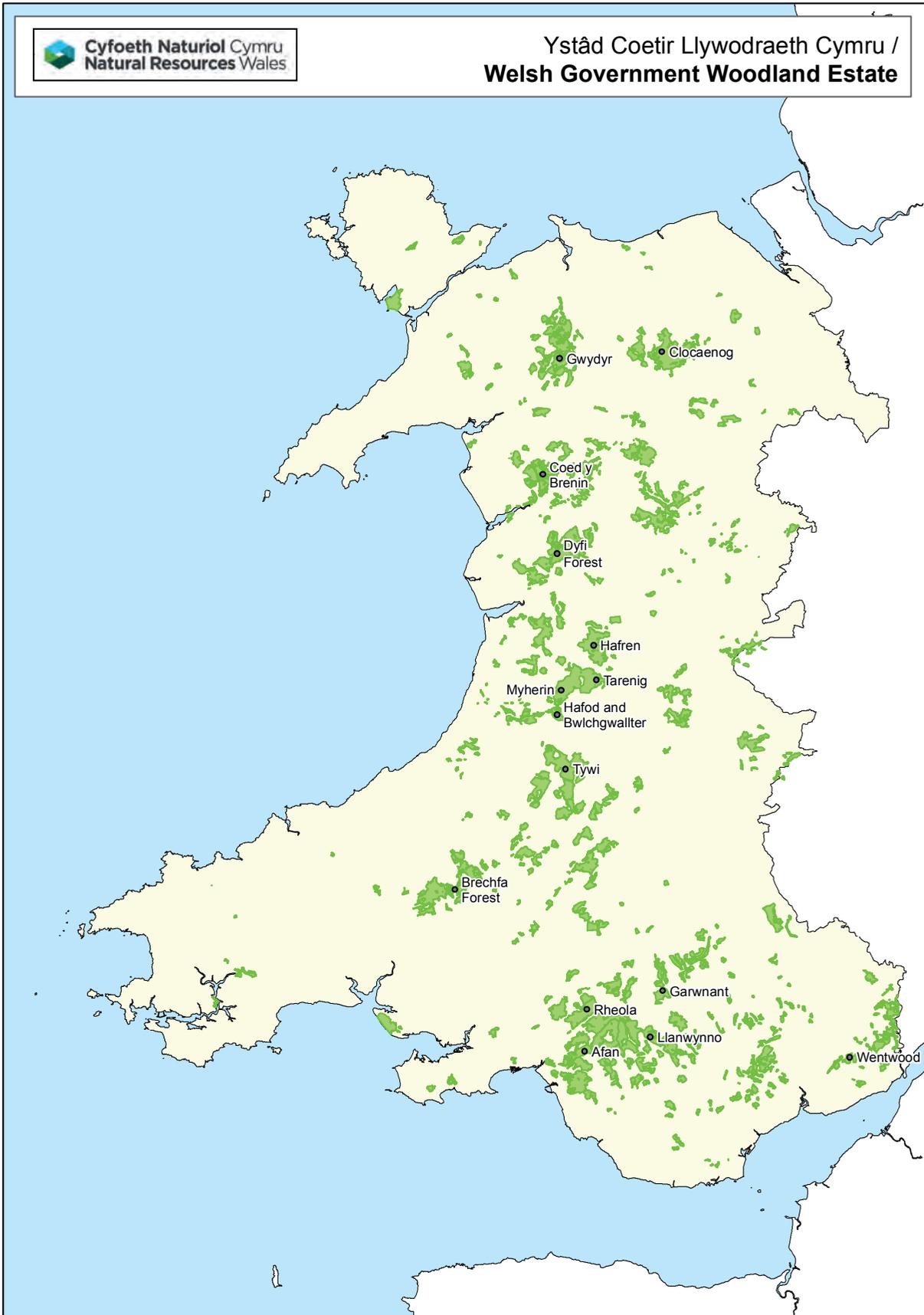
Key priorities	Performance Indicator	Desired trend
Learning opportunities	<ul style="list-style-type: none"> Learning visits facilitated through site visits, education resources and site infrastructure 	Increase
Shared management and collaboration opportunities	<ul style="list-style-type: none"> Number of partnership projects Area of WGWE managed via alternative arrangements 	Increase
Productive potential	<ul style="list-style-type: none"> Timber sales Forecasted timber availability Size of the land-bank (area awaiting restocking) 	Maintain or increase Maintain within threshold ¹⁸
R&D	<ul style="list-style-type: none"> No of research trials on the WGWE Number of incidences of the adoption / implementation of research findings or novel approaches 	Increase
Water quality	<ul style="list-style-type: none"> Number of times forestry is identified as a Reason for Not Achieving Good (RNAG) status¹⁹. 	Decrease
Valuing benefits	<ul style="list-style-type: none"> Natural resource account for the WGWE 	Increase



¹⁸ NRW has an internal business rule that “the total land bank should not exceed the total productive forest area of the Welsh Government Woodland Estate across Wales by 4% by 2020”.

¹⁹ Water Framework Directive

Annex 1: The location of the WGWE



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Mae graddfa'r map yn cywir pan argraffu yn A4
 The scale of this map is only correct when printed out at A4

1:1,080,000
 Graddfa / Scale

Date: 27/04/2018
 Coordinate System: British National Grid

Annex 2: Summary of income and expenditure for WGWE

Forest Estate Income and Expenditure Summary

Year Ended 31 March 2017

	Timber Harvesting and Marketing	Recreation and Access	Wind Energy Programme	Managing and Operating the Estate	Other Estate Income and Expenditure	Total
	£'000	£'000	£'000	£'000	£'000	£'000
Income	16,069,666	1,428,987	4,195,274	781,987	182,965	22,658,880
Payment to Welsh Government			(1,479,946)			(1,479,946)
Expenditure	(17,136,178)	(3,340,656)	(2,334,382)	(5,324,265)	(3,498,820)	(31,634,301)
Grant in Aid Contribution	<u>(1,066,512)</u>	<u>(1,911,669)</u>	<u>380,946</u>	<u>(4,542,277)</u>	<u>(3,315,855)</u>	<u>(10,455,367)</u>

Notes

1. Timber income excludes grant in aid relating to *Phytophthora ramorum* of £3.2m. Timber income includes both standing sales and roadside sales.
2. Costs relating to *Phytophthora ramorum* are included. Excluding these costs, commercial timber operations would show a surplus of around £2m before central overheads.
3. Expenditure relating to the provisions of corporate services, such as ICT and facilities, is not included.
4. Wind Energy Programme income represents gross option fee income prior to remittances to Welsh Government. Other Energy Delivery income is included in Managing and Operating the Estate.
5. The payment to Welsh Government represents the amount remitted to Welsh Government from Wind Energy Option Fee income. The small surplus then covers relevant overheads as agreed with Welsh Government.
6. Expenditure comprises all costs directly relating to particular areas of activity. Central administrative and overhead costs are not included.
7. Estate Management costs include a share of planning costs and Estate Management staff costs, plus smaller amounts for legal fees and lease payments.
8. Estate Management income primarily consists of telecommunication mast rental income and mineral and other rights income.
9. Other Expenditure includes plant and Estate protection and biodiversity, development costs, and also an element of forest planning costs.
10. A share of costs relating to the promotion and development of recreation both within and outside NRW's Estate have been attributed to recreation within the Estate, pending more detailed analysis.
11. The Grant in Aid Contribution represents the contribution made towards each activity from Grant in Aid. The Wind Energy Programme does not utilise grant in aid funding.



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0300 065 3000 (Mon-Fri, 8am - 6pm)
enquiries@naturalresourceswales.gov.uk
www.naturalresourceswales.gov.uk

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