



# Northwest BAU (Business Area Unit) Strategic Plan 2016-2020

**Foreword**

I have great pleasure in publishing Coillte's Northwest Business Area Unit (BAU) strategic plan.

The purpose of a BAU strategic plan is to set out plans for the forest and non-forest business that will take place in the BAU during the plan period. In practicing sustainable forest management Coillte's aim is to develop its forests in a way that is environmentally sustainable, socially sustainable and economically sustainable. Coillte has applied the principles of environmental impact assessment and risk management to the potential interactions between forest activities and standard receptors in compiling these plans.

The topics covered in the BAU strategic plan include:

**Commercial Planning:**

- planting
- timber harvesting
- timber sales
- forest roads and access
- licenses, lettings, recreation and non-forestry land uses
- land acquisition and sales
- non-forest business – such as renewable energy

**Planning for public benefits and public use:**

- Community facilities and benefits
- Recreational and tourism infrastructure and partnerships
- Access
- Environmental enhancement measures such as biodiversity and nature conservation

**Planning for sustainable use of resources:**

- sustainable forest management
- long term retention of trees
- low impact silvicultural<sup>1</sup> systems
- water quality
- forest design
- use of chemicals



John O'Connor  
BAU Manager

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<sup>1</sup> Growing, cultivating and felling trees

## **Statement of Compliance with Principles of Sustainable Forestry Management**

The Coillte estate is a rich, high quality environmental resource, with the potential to interact with people, landscape, water and biodiversity. As such, Coillte recognises and seeks to minimise any potential adverse impacts of our business on the environment through responsible environmental management. We are committed to the prevention of pollution.

As part of our commitment to the stewardship of our forests, we seek and welcome comments and suggestions from stakeholders with regard to environmental issues. Through this partnership approach we also encourage co-operation from our stakeholders.

As a prerequisite to all our operations, Coillte is committed to the protection of the environment. The scope of this policy covers the operations and activities associated with our forestry, property sales and energy businesses.

Our objectives are to:

1. Adopt an organisation wide system for managing environmental issues. The Director of Stewardship and Public Goods has responsibility for managing the implementation of this policy and our environmental management system (EMS).
2. Manage our business in full compliance with all applicable laws, directives and regulations, as well as voluntary external accredited schemes to which we subscribe e.g. the Forest Stewardship Council<sup>2</sup> (FSC<sup>®</sup>) and the Programme for the Endorsement of Forest Certification (PEFC<sup>™</sup>).
3. Prevent negative environmental impacts through a system of operational controls that include communication, written instructions and appropriate training
4. Continually improving environmental performance by setting and reviewing objectives & targets related to significant environmental risks and putting into effect programmes to reduce those risks.
5. Communicate, as appropriate, our Environmental Policy to Coillte staff and stakeholders, contractors and their employees and the communities within which we operate.

John O'Connor  
BAU Manager

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<sup>2</sup> FSC licence code FSC- C005714

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## **1. Coillte and the BAU Strategic Plans**

### **1.1 Coillte**

Coillte is Ireland's leading natural resources companies with operations in forestry, timber panel production, renewable energy and land management. The core purpose of the company is to enrich lives locally, nationally and globally through innovative and sustainable management of natural resources.

#### **History**

Coillte was established under the Forestry Act of 1988 as a private limited company registered under and subject to the Companies Acts 1963-86. All of the shares in the company are held by the Minister for Agriculture, Food and the Marine and the Minister for Public Expenditure and Reform on behalf of the Irish State. The Board of Directors is appointed by the Minister for Agriculture. Coillte commenced trading in 1989 when it acquired ownership of the Irish State's forests.

#### **Coillte today**

The company is an export oriented, forestry and forest products business, with interests in renewable energy. The company has three operating divisions - Coillte Forest, Coillte Panel Products and Coillte Enterprise.

The company employs approximately 1,000 people across Ireland and the UK and supports the employment of many more people in jobs that add value to our forest products.

The Forest Service (Department of Agriculture, Food and the Marine) is the forest authority in Ireland. The Forest Service is responsible for ensuring the development of forestry within Ireland in a manner and to a scale that maximises its contribution to national socio-economic well-being on a sustainable basis that is compatible with the protection of the environment.

#### **Outdoor Recreation**

As Ireland's leading provider of outdoor recreation we have more than 150 recreation sites for you to enjoy. For more information on how to get out and enjoy the outdoors see <http://www.coillte.ie/our-forests/explore/>

### **1.2 Renewable Energy**

Coillte is committed to the development of sustainable energy in Ireland, as we move towards a sustainable future with enhanced energy security. As the largest provider of high quality sites to the renewable energy sector, Coillte is making a significant contribution to Ireland's 2020 target of achieving 40% of its electricity consumption from renewable sources. Coillte is fully aligned with government and EU policy in terms of the role we plan in relation to renewable energy development in Ireland.

Ireland's dependence on imported fossil fuel has left energy consumers vulnerable in terms of energy security, energy price volatility and exposure to carbon taxes. Reducing Ireland's reliance on fossil fuel imports, reducing our greenhouse gas emissions and improving domestic fuel security are key pillars for developing a green economy.

Coillte has already made a significant contribution towards the development of renewable energy in Ireland over the last 20 years. Over the course of the BAU Strategic plan period and beyond, Coillte has a very important role to play, both as a developer and a land owner, in helping Ireland reach its 2020 renewable energy targets and in helping reduce Ireland's carbon emissions. Coillte proposes to do this through facilitating the development of multiple renewable energy technologies.

In terms of developing our renewable energy resources we are committed to:

- Open and transparent public participation and consultation with stakeholders and local communities.
- Best in class Environmental Impact Assessment and Appropriate Assessment that enhances and preserves local ecology and the habitats therein.
- Complying with all relevant environmental legislation, health and safety legislation, regulations and other requirements as they arise.
- Minimising the impact of wind farm development on the surrounding landscape and surrounding forestry in so far as that is possible through careful siting and design.
- Considering the impact on recreational users, and also the opportunity there may be when developing a wind farm to develop enhanced recreational facilities.
- Mitigating against the risk of pollution and conducting our business in an environmentally friendly way.

### 1.2.1 Public Participation and Consultation

Coillte supports proper planning and sustainable development and fully recognises that the development of renewable energy projects must afford appropriate protection to the social, environmental and economic pillars of sustainability. We are committed to ensuring that people are aware of our plans and policies and that we present all of our information in a clear and understandable manner.

Coillte's policy is to consult widely with national and local stakeholders in all stages of the wind farm development from pre-planning, development and operational phases. In addition, all projects developed by Coillte provide a Community Benefit mechanism as part of the project.

While not a statutory requirement of the Irish planning system, Coillte insists that, in all instances where wind turbines are proposed on the Coillte estate, the relevant host community is consulted about that proposal prior to any Planning Application being lodged with the relevant Planning Authority. As part of Coillte's commitment to the responsible stewardship of its forests, it seeks and welcomes comments and suggestions from stakeholders about how it manages its forests in the most responsible way for the benefit of society and future generations.

### 1.2.2 Wind Energy

Coillte's lands possess some of the best onshore wind regimes in Ireland due, inter alia, to its altitude, aspect and location. It is also often particularly suitable for wind farm development due to its remoteness, accessibility, distance from dwellings and visibility relative to areas with high scenic amenity.

Coillte is aware that wind energy is a proven technology and according to the Irish Wind Energy Association (IWEA), it provided 24% of our Irish electricity demand in 2015. As outlined in the White Paper 'Ireland's Transition to a Low Carbon Energy Future 2015-2030', Coillte too recognises that "*onshore wind will continue to make a significant contribution*"<sup>3</sup> to meeting Ireland's energy needs.

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<sup>3</sup> <http://www.dcenr.gov.ie/energy/SiteCollectionDocuments/Energy-Initiatives/Energy%20White%20Paper%20-%20Dec%202015.pdf>

Due to the fact that there are many myths concerning wind energy developments, Coillte has developed a Frequently Asked Questions document on this subject matter. Should you require further information regarding Coillte's involvement in the wind energy industry, please consult our Frequently Asked Questions section of our website [www.coillte.ie/faqs](http://www.coillte.ie/faqs).

### **1.2.3 Biomass**

The key guiding principle for Coillte's vision is that Ireland's biomass is a limited and valuable indigenous resource and should be harnessed in a way that maximises value throughout the supply chain. Coillte does so by providing competitive, long term and secure biomass fuel supply contracts for its woodchip clients and also assists in the evaluation of both the technical and commercial viability of projects for large scale industrial energy users.

Coillte is now playing a key leadership role in delivering sustainable biomass energy solutions to the Irish biomass industry through its new supply model. We operate a number of regional biomass fuel supply hubs throughout the country. Coillte provide full chain of custody from forest to boiler ("stump to steam") and all wood chip is produced strictly in accordance with quality specifications set out in I.S. CEN/TS 14961: 2005, with a significant emphasis on optimisation of wood flow to minimise haulage distances for all transportation required.

Coillte has developed a new partnership model aimed at unlocking the potential of the bio-energy sector here in Ireland and is currently rolling this model out nationally through its new biomass processing hubs. Each Coillte processing hub now supports a range of supply chain jobs and underpins significant annual energy and carbon savings for its clients. Should you require any further details regarding Coillte's involvement in the biomass industry, please do not hesitate to contact us at [biomass@coillte.ie](mailto:biomass@coillte.ie).

### **1.2.4 Other Renewable Technologies**

In addition to playing a leadership role in wind energy and biomass production, Coillte is currently engaged in a process to assess the potential opportunities for solar energy on the Coillte estate. Coillte is also assessing recent technology developments in the area of energy storage. Furthermore, the potential for hydro energy may also be considered on the estate along with any other emerging technologies. Work is underway to understand these technologies and their potential application for Coillte, either being integrated into our existing energy projects or developed as standalone projects in the future.

## **1.3 Coillte's Resource Management Approach**

During 2011 and 2012 a major project was undertaken within Coillte Forest to review fundamentally our approach to managing our forest resource. The underlying objective of this work is to use optimisation techniques to ensure we are maximising the return from the land resource in a balanced and sustainable manner. In 2013 this project moved into implementation phase and, after a successful pilot programme, has now been adopted as the primary planning tool for Coillte forest.

The schedule itself is built through running a management model. It is important that the model reflects

- the costs and benefits of all possible actions,
- the crop and site types and the circumstances under which each action is allowed,
- and the relevant management objectives and constraints operating at a strategic and local level

As the model was developed and refined each BAU was consulted on the model as it applies to their area. The outputs of the management model may span multiple years or decades and in this format, will be used as a strategic resource management tool.

A major benefit of the approach to Coillte is the speed with which a new national activity schedule is generated which reflects, for example, the impact of storm or a significant shift in markets. In extreme cases a stand may have its scheduled fell year shifted as frequently as every quarter, as the model is re-run to incorporate emerging information on demand or crop parameters.

This is why forest management principles, objectives and constraints are reflected into the model and form the basis the BAU plan.

Once these principles are agreed, each model run during the lifetime of the BAU Strategic Plan will comply with the principles, as will the ensuing harvest schedule. The harvest activity levels are available to view on our Webmap, these draft activity levels are based on an initial run. Where changes occur due to public feedback or from other influences e.g. environmental or policy, which cause an increase of over 20% in activity within a property these areas will be published on Coillte's website as having changed significantly since initial publication.

#### **1.4 Benefits of Coillte**

In addition to benefits to the economy in terms of sustainable forest products and energy production, Coillte's forests provide a range of social, environmental, recreational, health and tourism benefits to the State and its people.

Coillte provides a wide range of 'public goods'. Extensive recreation facilities are provided in Coillte's forests including Ireland's best mountain biking facilities. Coillte operates an open access policy for walkers and pedestrian users, and people can apply for licenses and permits to engage in a wide range of other activities. Coillte's recreation policies are set out in the company's website at <http://www.coillte.ie/media/2016/12/Coillte-Recreation-Policy.pdf> and our website [www.coillte.ie](http://www.coillte.ie) provides information about our recreational opportunities.

Over fifteen per cent of our estate is actively managed for nature conservation. Habitat restoration projects such as the EU funded LIFE Priority Woodland Project, and recreation partnerships like the Dublin Mountains Partnership are showcase projects that demonstrate best practice natural resource management.

In addition to being important resources for construction and for energy production our forests are also important natural systems for capturing and storing carbon from the atmosphere and they play a role in moderating flooding at times of high rainfall.

We talk to people locally about how to maximise these benefits through our BAU social and environmental panels which are drawn from key stakeholders in each BAU.

#### **1.5 Meeting external challenges and constraints**

Coillte and all of its forests and lands are subject to a number of key external factors. Typically these arise as policies or legislation relating to forestry which drive change and can have a major influence on our future. Understanding and anticipating these factors is vital in order to manage change proactively rather than responding to it reactively and Coillte work proactively with our key statutory and non-statutory regulators. The following table outlines some of the principal challenges and commitments. The BAU strategic plans will each contribute to meeting these challenges and constraints.

Challenges and Commitments	Response
<p><b>National Forest Strategy</b></p> <p>The government forestry strategy published in a document titled "Growing for the Future"</p>	<p>In response to the National Forest Strategy:</p> <p>Coillte will set and meet targets for the national timber supply.</p> <p>It will engage in a greater diversification of species and increase broadleaf content according to agreed targets.</p> <p>Coillte will seek to increase the recreational value of some of its forests.</p>
<p><b>National Biodiversity Plan</b></p> <p>Ireland is a signatory to the 1992 Convention on Biological Diversity and is committed to biodiversity protection and enhancement measures in the National Biodiversity Plan.</p>	<p>Coillte is making a meaningful contribution to the National Biodiversity Action Plan through the designation of 15% of its forest estate overall for nature conservation and biodiversity management.</p>
<p><b>EC Habitats Directive and EC Birds Directive</b></p> <p><b>(92/43/EEC)</b> as transposed into Irish law under the S.I. No. 477 of 2011 EUROPEAN COMMUNITIES (BIRDS AND NATURAL HABITATS) REGULATIONS 2011.</p> <p>The EU Directive on the conservation of natural habitats and of wild fauna and flora provides for the protection of habitats and their species, and where necessary their restoration to favourable conservation status.</p>	<p>Coillte is committed to achieving or maintaining favourable condition of all of the Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Natural Heritage Areas (NHA) on its lands.</p> <p>All forest operations which potentially could impact on such sites are assessed under the criteria outlined as required by the Regulations.</p>

<p><b>Water Framework Directive (2000/60/EC)</b></p> <p>The EU Water Framework Directive establishes a framework for the protection of rivers, lakes, coastal and ground waters by requiring States to achieve good ecological status for all waters, ensuring that status does not deteriorate in any waters. The summary timetable and work programme for the production of the second cycle of River Basin Management Plans (RBMPs) 2015-2021 was published in July 2015. In addition a Significant Water Management Issues (SWMI) report will be published and will be open to public consultation until December 2015. This will feed into the draft River Basin Management Plans for 2015-2021 to be published in December 2016. The RBMPs will be open to further public consultation with a view to publish an updated and final version in December 2017.</p>	<p>National Surface and Drinking Water Regulations have been enacted since 2007 to give legal status to the criteria and standards to be used for classifying surface waters in accordance with the ecological objectives approach of the Water Framework Directive. The classification of waters is a key step in the river basin management planning process and is central to the setting of objectives and the development of programmes of measures. Waters classified as 'high' or 'good' must not be allowed deteriorate. Waters classified as less than good must be restored to at least good status within a prescribed timeframe. The environmental targets or goals and the programmes of measures (POMs) to be included in river basin management plans must therefore reflect these requirements.</p> <p>Coillte has been proactive with the regulatory agencies, such as the Forest Service, Inland Fisheries Ireland, Local Authorities and NPWS, in deriving POMs to be implemented by the forest sector in avoiding and/or minimising the potential impact of forest activities on water quality. A central tenet of the POMs adheres to the Forest Service Code of Best Forest Practice and Guidelines, including all relevant regulations and requirements, and the Forest Standards for Ireland (National, FSC and PEFC) with compliance assessed by way of independent audits by the Forest Service, FSC and PEFC.</p>
<p><b>Sustainable Forest Management (SFM)</b></p> <p>SFM is the forestry sector's response to sustainable development. Balancing the economic, environmental and social elements is now the accepted way by which forest management is conducted. Forest certification ensures best forest practice is implemented and provides stakeholders with an opportunity to contribute to the management of forests.</p>	<p>Coillte is fully committed to a policy of sustainable management of all of its forests and forest lands. Coillte applied for FSC certification of its forests in 2000 and were awarded an FSC certificate in 2001. Coillte applied for PEFC certification of its forests in 2013 and were awarded a PEFC certificate in 2014. These external forest management certification schemes endorse Coillte's policy of sustainable forest management, balancing the social, economic and environmental aspects of forest management.</p>

Coillte also respond to external factors that have a significant impact on its forests. One example is the disease *Phytophthora Ramorum* also known as sudden oak death which has been detected in a number of BAUs. Another is *Chalara fraxina* which is a serious fungal disease of ash trees. This has caused widespread damage to ash populations in continental Europe and was recently detected in a number of privately owned forests.

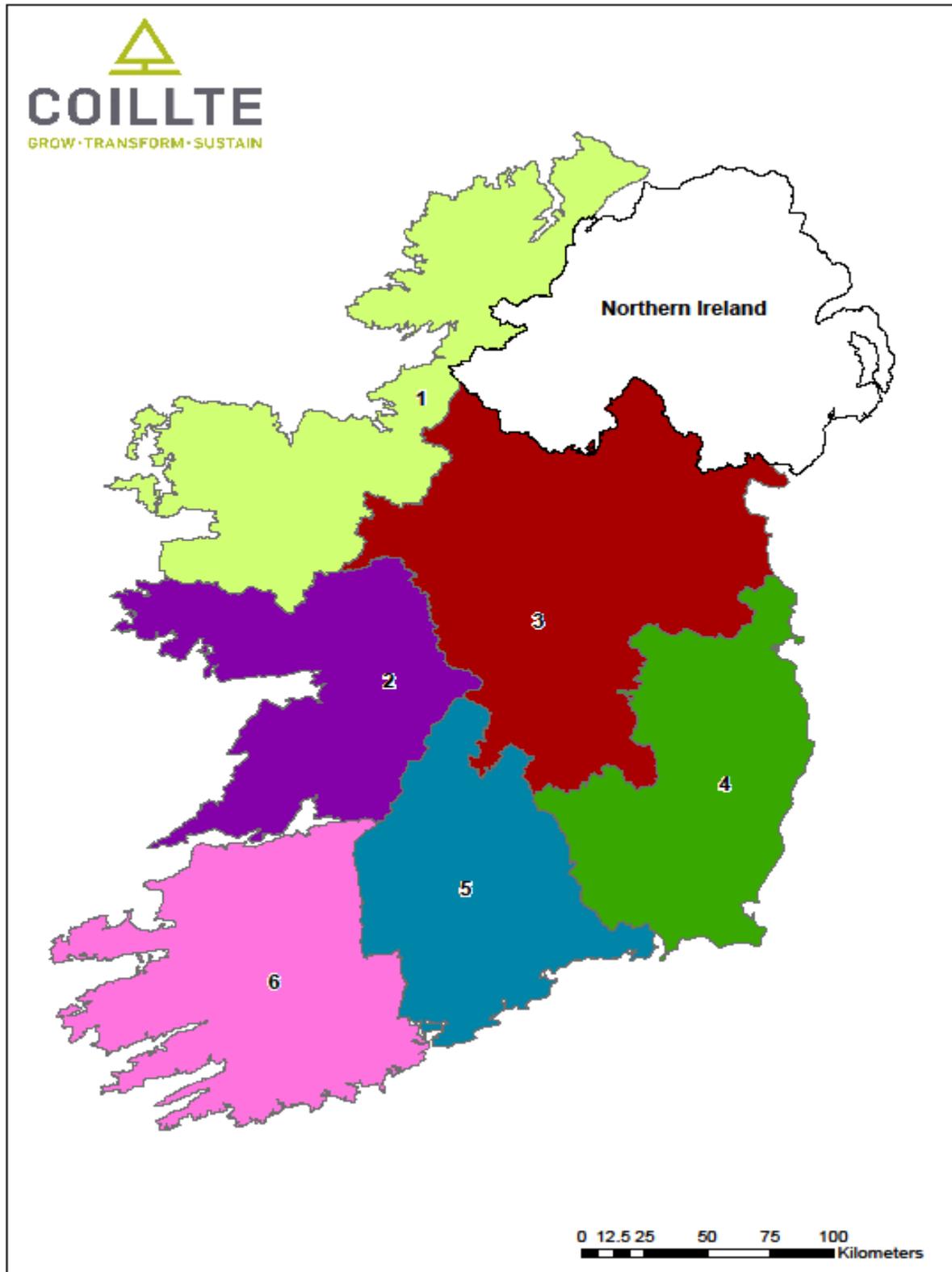
Coillte will liaise closely with Forest Service with regard to this significant potential threat to our Ash woodlands and will respond immediately to any mitigation measures proposed.

A number of changes in modern society also impact Coillte's management and planning for its forest estate and these include:

- A greater awareness of environmental issues amongst the public leading to a demand for higher standards of environmental protection. The challenge for Coillte here is the long term nature of forest planning and the need to realise the commercial potential of mature timber without excessive cost.
- Coillte has responded to an increased appreciation of landscape and of the place of forests in the landscape by new policies and practices in relation to forest design and by new approaches to felling decisions, in particular looking at alternatives to extensive clear felling where possible.
- A higher demand for access, recreational and tourism facilities in forests and in the types of recreation demanded – Coillte practices an open forest policy where all of its forests are open for walking, and has increased its provision of special trails including improved provision of waymarked ways and looped walks, mountain bike trails and nature trails. Coillte frequently enters into partnerships with local communities, local development and tourism groups, county councils, and with development bodies such as Fáilte Ireland, Waterways Ireland and the Fisheries Boards to achieve such provision.
- Significant increases in illegal disposal of waste, often within Coillte forests, has led to requirements to remove waste and litter, this has led to partnership based approaches to reducing dumping and littering.

### 1.6 Coillte BAUs

Coillte's estate is divided into 6 Business Area Units (BAUs)



Coillte has developed plans for each of these BAUs, called BAU Strategic Plans which describe Coillte's forests and other assets in the area, and set out a vision for their management. The last planning cycle was for 2011-2015. This consultation document refers to the incoming planning cycle 2016-2020.

Coillte also convenes a social and environmental panel for each of its BAUs. Plans and programmes are discussed with these groups to help Coillte to understand social, recreational and environmental issues, opportunities and concerns in the BAU.

### **1.7 Summary on the various levels of Coillte forest management planning**

The **BAU strategic plan** sets out the economic, social and environmental strategies and priorities for the long and medium term in the BAU and gives a clear direction for the management of the forests at local level for the next 5 years. The plans are developed in consultation with a wide range of stakeholders both internal and external to the company. Input from external stakeholders (individuals, communities, NGOs and statutory bodies) are sought during the consultation process, feedback is considered and where feasible, is incorporated into the plans. The Forest Management Unit (FMU) planning requirement, for Forest Certification, is achieved through the BAU strategic plan process.

**SF (Site File)** is built when site-level planning is initiated for activity within each Harvest Unit and describes how the plan is going to be implemented for the operation managers, workers and contractors. Social and environmental impacts, including consultation, are assessed through the environmental impact appraisal process and mitigation measures are written in each site management plan.

All levels of planning feed into the annual **BAU Operating Business Plan and Work Plan**. These plans focus on the tasks/targets to be achieved during the year and outline the necessary resources (financial and human) required.

The BAU is the Forest Management Unit and is built from smaller spatial entities the largest of these being the Forest Unit. Key activity levels within each Forest Unit are further broken down in [Appendix V](#). Further to the appendix, a Webmap is available to view areas with proposed Clearfells and areas which have the potential to be thinned in the review period. [Click here](#) to access the Webmap.

## 2. Northwest BAU

### 2.1 The Northwest BAU

All BAU's play important roles in achieving Coillte targets and objectives. The North West BAU has 36 Forests encompassing all of Co. Donegal, 4 Forests in North Co. Leitrim, 12 forests in Co. Sligo and 34 forest in Co. Mayo

It is a large BAU covering 1.2 million hectares of Ireland. Within this area, Coillte owns 99,835.50 hectares (7.94%) of which is mainly comprised of moorland, marsh, lakes and open space.

Main population centres in the area include Letterkenny, Ballybofey, Sligo, Manorhamilton, Ballina, Castlebar and Westport.

Part of the BAU falls into the Border region and has attracted significant attention in the National Development Plan due to economic and structural disadvantage.

It is a place of forests, rivers and lakes, with a coastline that varies from long sandy beaches to high limestone ridges.

The varied rural landscape and natural assets of the Border Region make it an ideal location for outdoor pursuits, including fishing, water sports and walking.

The climate for forestry operations is challenging, with high rainfall and some very wet ground conditions. The area normally experiences relatively mild winters and it has many days of wind.

Coillte will continue to work in collaboration with County Councils and other development agencies to contribute to the development of projects that have the potential to deliver strategic benefit to the area e.g. job creation, recreation, culture and heritage.

### 2.2 Forests and forest products in the Northwest BAU

A map of Coillte's Forests in the Northwest BAU can be viewed in [Appendix VI](#).

During the 2011-2015 period the BAU produced approximately 1.7 million m<sup>3</sup> of timber\*. This timber was primarily sold to Balcas(Fermanagh), ECC and Murrays(Galway). Smaller Mills include Drenagh(Derry), Boyd Bedding Products(Tyrone), McLoughlins, McCool's and Doherty's Stake Mills(Donegal), John Mac Hales Sawmill(Sligo), Crowes of Mohill(Leitrim) and McHugh Sawmills(Cavan).

Coillte's production supports 3 major sawmills; Balcas, ECC and Murrays, plus a number of smaller sawmills and local stake mills. It is also a major source of wood fibre for Coillte's CPP (Coillte Panel Product) mills namely Medite in Clonmel, Co Tipperary and SmartPLY in Waterford.

The North West BAU also has a vibrant Firewood market within the BAU and also in Northern Ireland.

Coillte is building on an existing Energy wood market in Donegal and Sligo/Leitrim.

\* Note: Figures for 2015 are based on pro rata sales forecast to year end based on actual sales at midyear.

### Forest Products

#### Private Timber

Coillte is the largest producer and consumer of pulpwood in Ireland. Coillte's strategy is to supplement its own supply through the purchase of private timber, through various channels. For further information please check the Coillte website at [www.coillte.ie](http://www.coillte.ie)

#### Farm Partnerships

This scheme is where Coillte and a farmer form a joint venture by agreement whereby Coillte plants

and manages the plantation for the life of the crop; ownership of the land remains with the farmer. Currently we have 33 farm partnerships within the BAU. This number is not expected to increase in the lifetime of this plan, as we are no longer engaged in this area. We will continue to support our existing partners.

### **2.3 Community, recreation and tourism facilities in the Northwest BAU**

Coillte has a long association with the communities, clubs and individuals who use the extensive forest network. The development of recreational facilities and activities in line with Coillte's Recreation policy are some of the many ways Coillte can contribute towards the "public good" value of the estate. This can be achieved through partnerships, permits and ongoing relationships that respects the sustainable use of our forests for future generations. The Northwest BAU recreational activities compliment the lakes and mountains within its boundaries and contributes to the social and economic life of Donegal, Mayo, Sligo and North Leitrim.

Ongoing regular consultation with the local communities provides a basis for further assessment of expanded recreational needs as well as regular assessment of usage of existing facilities.

A number of recreational facilities are the result of a joint initiative between Coillte, local authorities and local communities. The BAU works closely with Sligo County Council and Donegal County Council, in particular the Donegal Trails Office. Recent examples of this collaborative effort are developments such as:

- Gortarowey, Union Wood and Knocknarea, Co Sligo
- Belleek, Raheens and Tourmakeady, Co. Mayo.
- Drumharriff, Drumboe and Ards forest park Co Donegal.

The BAU has a high recreational usage with a number of National Way-marked Ways traversing Coillte property within the BAU. These include sections of the Sligo way, Co Sligo. Bealach na Gaeltachta, Sli Dun na nGall, The Bluestacks Way and The Pilgrim's Path, in County Donegal. The Bangor way, Foxford way and Western way in Co. Mayo.

Coillte has also developed a number of looped trails in conjunction with local communities and Fáilte Ireland under their National Looped Walks Programme. The most popular are: Ards forest park, Drumboe wood in Co Donegal, and Deerpark in Co Sligo. The following trail developments in Sligo were supported by the Forest service under the neighbourwood scheme. Dooney Rock, Slishwood and Hazelwood.

There is a highly utilised forest amenity park located at Ards in North Donegal.

Many Coillte forests in this BAU are expansive and offer multiple activities such as walking, hiking, multi access and cycling on new bike trails, fishing, picnicking, watching wildlife, canoeing, field archaeology or simple enjoyment of the outdoors. A number of submissions were made from a variety of local organisations as part of the consultation on the BAU Strategic Plan 2016-2020. The BAU team are keen to meet with these organisations and consider all submissions for the development of recreational areas across the BAU. All submissions will need to be carefully assessed to determine the potential usage of any such area and the availability of funding (internally or externally) for the development of any infrastructure.

This BAU has 52 designated areas for recreational activity, and some of these are detailed on the Coillte website <http://www.coillte.ie/our-forests/explore/>

A full list of woodlands designated for recreation in the BAU are available in [Appendix III](#).

### **2.4 Cultural and archaeological heritage in the BAU**

Coillte is aware of some 277 (monuments) archaeological sites and sites of cultural significance in its landholdings in the Northwest BAU. These monuments include megalithic tombs of different kinds, cashels and other enclosures and crannogs. A summary of archaeological sites in the BAU is provided in [Appendix I](#).

With support and advice from the NPWS, the National Monuments Service and National Inventory of Architectural Heritage, Department of Arts, Heritage & the Gaeltacht. Coillte has developed a Code of Practice in order to protect this archaeological and cultural heritage.

Many land acquisitions contain farmsteads and features representing rural life in the 19<sup>th</sup> and early 20<sup>th</sup> century such as vernacular built heritage, traditional field boundaries, dry- stone walls, gate houses, cultural landscape features and historic farming patterns. These are identified and protected within forest management practices and identified when proposals for sales are being developed. They are evaluated in terms of their social, heritage and historical value and a plan implemented for their preservation.

The BAU will continue to support sites of cultural and literary heritage such as that of O'Donnell's Castle in Lough Eske and the Derryveigh Famine Eviction site in Donegal. Also Moore Hall, Towerhill and Belleek Demesne in Co. Mayo.

Coillte will identify, protect and record all new items of heritage which are discovered on its lands.

## **2.5 Biodiversity and high conservation value forests (HCVF) within the Northwest BAU**

Ecological surveys were carried out between 2003 and 2006 to identify areas of maximum biodiversity value and draw up management plans for those areas. The findings of each of the completed surveys, were incorporated into our forest management plans. We consulted on our individual forest management plans a number of years ago.

The ecological survey identified and mapped Coillte lands in the BAU where it was considered most appropriate to manage for conservation value. This area is distributed in over 352 locations. Management plans for these sites have been agreed and adopted with the ecologists and their recommendations will be implemented in Coillte's ongoing management of the areas. Additional biodiversity areas were subsequently identified as biodiversity areas by forest managers, e.g. riparian zones. As a result, the total area included in biodiversity areas in the BAU is 23,392.30 Ha (23% of Coillte land in the BAU).

Management plans have been developed for these areas to ensure their conservation and protection.

Each year, the sites of highest biodiversity value are targeted for monitoring and management activities.

Coillte's certification process requires it to identify areas of high conservation value forests (HCVF) across its forest estate. High conservation value forests (HCVF) are areas, not necessarily under forest, that are nationally important for nature conservation and have recognised conservation values associated with them. Two high conservation values have been identified for Coillte forest lands, namely:

1. Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values;
2. Forest areas that are in or contain rare, threatened or endangered ecosystems.

HCVF areas in the BAU largely overlap with areas designated for nature conservation, either nationally under the Wildlife Act as Natural Heritage Areas (NHA) or under European Law in the form of the Habitats Directive as Special Areas of Conservation (SAC) or Special Protected Areas for birds (SPA).

HCVF areas may be quite large, such as Special Protection Areas in the west of Ireland for hen harrier conservation, or they may be quite small such as an old house within a forest which hosts an important roosting site for bats. They may also occur on non- forested lands such as the atlantic blanket bogs in the west and the raised bogs of the midlands.

All management operations in HCVF areas are designed to maintain and/or enhance the designated conservation value and operations are further managed using the precautionary principle.

The table below shows statutory designated areas and HCVF in the Northwest BAU. Areas shown

are in hectares (ha).

Designation	Area (ha on Coillte lands)
HCVF	6329
NHA* – Natural Heritage Area	1,138
SAC* - Special Area of Conservation	4,816
SPA* – Special Protection Area	562
Nature Reserve	11
pNHA	3903

(\*Overlap occurs between categories)

Coillte recognises that woodland sites have the potential to be high conservation value forests. These are Old Woodland Sites (OWS) with the best semi-natural characteristics, or that support nationally important populations of rare, threatened or endangered species. Coillte policy is to access and survey all OWS in advance of clear felling or high impact operations. Any site identified as having a 'high score' is brought to the attention of the company's ecologists and their advice acted upon.

The Northwest BAU achievements in relation to nature conservation include the following:

- 1086ha of peatland has been restored over 10 sites –
  - Croaghonagh and Carrick Barr Co. Donegal.
  - Owenirragh, Corravokeen, Shanvolahan, Glencullin, Derry, Eskeragh and Bellaveeney Co. Mayo.
  - Sessuegilroy Co Sligo.
- LIFE Project – 24 ha Alluvial Woodland, Hazelwood, Co. Sligo
- Millennium Project – Cullentra, Co. Sligo 57.8 ha
- 2,011 ha is being managed as OWS to retain their semi-natural characteristics

## 2.6 Species and habitats in the Northwest BAU

The BAU includes some non-forest habitats of special value for nature conservation. These include peatland/fen, heath, exposed rock, grassland/marsh, freshwater/swamp and coastal habitats. The bogs of West Mayo are renowned for their wilderness, flora and fauna.

A number of rare bird species are present at sites within the BAU. These include the Merlin, Peregrine Falcon, Hen Harrier, Golden Plover, Red Grouse, Red-throated diver, the Chough, the Ring Ouzel and the Golden Eagle. The Golden Eagle Restoration Project has been going on for approximately 8 years. They were introduced into Glenveigh National Park.

The following rare species of plants are present in the BAU. The Globe Flower, Irish Lady's Tresses, Yellow Birds nest, Round leaved Wintergreen, Less Tway Blade, Narrow buckler-fern, Lemon-scented fern and the broad leaved helleborine. Amongst invertebrates are the white-clawed crayfish and the Fresh Water Pearl Mussel in Co. Donegal and Co. Mayo.

Notable mammals in the area include the red squirrel, lesser horseshoe bat, pine marten and badger.

Insects include the Marsh Fritillary, which is Ireland's only legally protected insect. Colonies occur

within Ards Forest Park in an area where coastal heath adjoins the woodland. The area is rich in "Devil's-bit scabious" which is the larval food plant, and the woodland provides the necessary shelter. It also occurs in an area adjoining the Knader wood and in other locations, including Lough Sallagh/Cashelnavean."

Detailed tables have been provided in [Appendix II](#) showing examples of our approach to the management of areas designated for biodiversity under each of the more important habitat types identified during the ecological surveys and also showing notable species of flora and fauna. The forest management plans for each forest contain details on the entire list of biodiversity areas involved.

## 2.7 Invasive species

Within the BAU there are a number of species that are not native to Ireland and which are capable of having a negative effect on native biodiversity. Most notable from a Coillte point of view are Rhododendron and Japanese Knotweed which is a significant issue on our properties.

In line with international best practice, when controlling invasive species (including Rhododendron), the BAUs resources are focused on priority sites based on:

1. The site's uniqueness (e.g. whether or not they are Priority habitats, as per EU Habitats directive),
2. Whether the presence of Rhododendron is likely to facilitate the spread of the exotic disease *Phytophthora ramorum*
3. The site's intrinsic ecological/biodiversity value (e.g. are they High Conservation Value Forests or Old Woodland Sites)
4. The social value of the forest (e.g. the extent to which the forest is used as a recreational facility/proximity to urban population).

## 2.8 Water quality and protection in the Northwest BAU

In terms of water, the BAU has many lakes including Lough Eske, Lough Finn, Lough Derg and Gartan in the Donegal area and Lough Gill, Lough Melvin, Lough Easkey, Lough Talt, Lough Gara and Glencar Loughs in the Sligo/Leitrim. The western part of the BAU is dominated by the "Great Western Lakes" Conn, Cullen, Mask and Cara in Co. Mayo. The BAU is covered by four Fisheries Boards; Northern Region Fisheries Board, the North West Regional Fisheries Board, Shannon basin district and The Loughs Agency. The main river catchments in the Donegal area are the Finn, Leannan, Swilly, Gweebarra, Owenea and the Eske. In Sligo/Leitrim area of the BAU the main rivers are the Shannon, Unshin, Owenboy, Owengarve, Bonet, and Diffreen. In Mayo the main rivers are Moy, Erriff, Newport, Deel, Owenboy and Owengarve. Important salmonoid catchments including the Erriff, Moy, Finn, Lennan, Owenea have been designated as SACs. The rivers and lakes of the BAU support important salmon/trout fisheries and supports the local tourism industry which is important to the local economy.

Six of the catchments are designated SACs for the protection of the fresh water pearl mussel (*Margaritifera, margaritifera*):

- i. Leannan/Glaskeelan
- ii. Clady
- iii. Eske
- iv. Owencarrow
- v. Owenea
- vi. Bundorragha
- vii. Newport

The Bundorragha and Leannan/Glaskeelan sub-catchment are in the top 8 FWPM catchments in Ireland.

Coillte actively participates in the implementation of the Water Framework Directive and ensures the forest sector plays its part in protecting the water bodies. Prior to the commencement of all high impact forest operations, an environmental impact assessment is conducted whereby all important aquatic zones (as defined by the Forest Service Guidelines) and permanent relevant watercourses draining the proposed operations area are noted and mitigation measures listed to ensure protection of the waters. It is at this stage, the requirement for the establishment of water protection areas (buffer zones), if not already in-situ, will be stipulated for all watercourses. Reference will be made on how the trees are to be removed and prohibition of machinery movement in the buffer zones during forest operations.

If the proposed 'high impact' forest operations site is judged to be water sensitive, a water monitoring programme will be put in place. This will comprise of daily visual assessment and recording of surface waters draining the site during operations and the immediate adoption of appropriate contingency measures where discolouration of the water is observed. On the most sensitive sites, this monitoring process is backed up with short-term water sampling. Typically, this sampling would be of short to mid duration, lasting a few weeks to several months, depending on the duration of the forest operation. Sampling consists of taking samples from the main tributaries draining the forest site, before, during and after operations are completed.

The full implementation of both the EU Water Framework and Habitats Directives, has significant implications for forest management in the BAU. It highlights the potential pressures of forests on water quality and increased risks from erosion and sedimentation. The need to move away from monoculture blocks of forests towards restructured forest stands has been recognised in the BAU. When restocking after clear felling, an extensive network of new buffer zones will be established to protect adjoining watercourses. Drainage and cultivation practices on these sites are also designed to minimise their impact on local water. Coillte will continue to work closely with the relevant statutory bodies and assist where possible with their water and fishery rehabilitation plans. The BAU looks forward to continuing the work on buffer zone management with the Loughs Agency, in particular the potential for broadleaf planting adjacent to salmonid watercourses.

Currently Coillte forests in the Nephin Mountains host two important research projects studying the effects of forests on water. The Hydrofor Project funded by Coford and the EPA is a study of the effects of forest operations on the ecological quality of water and the Sanifac project funded by the Dept. of Agriculture studies the effect of sediment and nutrient release from forest operations in the Burrishoole catchment. Both studies are being carried out under the supervision of National University of Ireland in Galway.

## **2.9 Forest Management Issues**

Coillte's Northwest BAU faces a number of issues in relation to managing its forests effectively for timber production while also promoting their use for their recreational and social purposes. The BAU borders three counties in Northern Ireland; Co. Derry, Co. Tyrone and Co. Fermanagh. Over the past 5 years these have included:

- Poaching of deer; The increased level of poaching in the recent period has put greater emphasis on security.
- Illegal use by motorised vehicles, inappropriate recreation with quads and motorbikes
- Security; Coillte is at the risk of major losses through theft, vandalism of property, and crop damage. To minimise this loss the BAU has commenced the implementation of the Company's security policy, in the BAU we have a contractor assigned to security of the estate.
- Litter and waste dumping; The majority of illegal dumping of domestic waste occurs where forests adjoin public roads and at forest entrances. The problem is extenuated in rural and remote areas but in close proximity to large urban areas. Coillte work closely with available Litter wardens to try combat this increasing problem.

- Anti-social behaviour; Coillte are investigating the most appropriate methods of security including the development of cameras in order to reduce this problem and lead to prosecutions.

Coillte implemented bye-laws for access to and use of Coillte managed lands. Recreation sites where there are ongoing issues such as illegal access on motorised vehicles, dumping, anti-social behaviour etc. will be prioritised as candidate sites for installation of the relevant signage. These bye-laws may be enforced by the Garda Siochana and offences may be liable to a fine and/or imprisonment.

### **2.9.1 Deer Management**

Wild deer are present on 60% of the Coillte estate. Through browsing and bark-stripping trees, deer can have a considerable negative impact on tree species selection as well as the quality, yield and survival of forest crops. Deer can also impact land use objectives on neighbouring lands.

It is Coillte's policy to manage deer in accordance with accepted principles of Sustainable Deer Management (SDM) whereby, the conservation, control and use of the species, will be balanced in order to achieve an integrated and collaborative solution to maintaining viable deer populations across the estate at levels which are in harmony with their environment. To this end Coillte maintain Deer Management Plans (DMP) for all areas where deer are present. Coillte's summary deer management policy can be viewed here [Deer Management Policy](#)

Deer are wild animals free to roam across large areas of multiple land ownerships, they are a protected species, and one which attracts considerable attention and differing views as to how they should be "managed". A key aspect of successful deer management is therefore establishing a collaborative approach between all key stakeholders within the deer's range at landscape level. A considerable element of this process is the acceptance of shared responsibility by all landowners in the area of their role and to ensure the effective management of the deer utilising their lands.

Coillte have demonstrated considerable commitment and leadership management in recent years in developing collaborative deer management and the establishment of training standards for deer hunters. At National level the Company was instrumental in the establishment of the Hunter Competence Assessment programme and the Irish Deer Management Forum. At Regional, and local level Coillte are active participants in a number of deer management partnerships and groups.

Wild deer are present throughout BAU1. The species include Red Deer, Fallow and Sika. Damaging impacts to Coillte's crops are generally localised, predominately in areas with high deer numbers. Damage is mainly confined to the browsing of broadleaved trees and some more palatable conifers such as Scots pine, Douglas fir, larch and Norway spruce. Deer populations are principally controlled through the issue of hunting licences.

### 3. The Northwest BAU Strategic Plan

We are very fortunate in the BAU in the richness and pristine quality of much of our environment, our wild natural resources and the presence of habitats and landscapes that are cherished both at home and internationally. We aim to maintain and enhance these assets while balancing the requirement to realise for the state and its people the enormous investment that has been made in Irish forestry over the years.

#### 3.1 Vision

The long-term vision for the BAU is of forestry management at an intensity that is appropriate to the environmental sensitivity and productivity of its land resource. By adopting policies that ensure our efforts are concentrated on timber production in some areas and on habitat restoration in other areas we will maximise the benefits to the environment, local communities and the timber processing industry.

This vision includes:

- forestry will be a vibrant industry in the area, integrated into the local economy, providing employment opportunities in the forest, the timber industry and in many downstream activities;
- a diverse range of species
- natural and semi-natural habitats are protected and enhanced through appropriate management;
- there is continuity of forest habitat for rare and threatened species;
- the public will gain health and well-being benefits from enjoying a range of recreation activities in the forests;
- forest recreational sites will be a part of the tourism infrastructure and will be an important contributor to the tourism economy;
- there will be a shared vision between the BAU and local communities on expectations from the forests and how they are managed.

#### 3.2 The Forest Resource and the Timber Business

Coillte realises its timber sales through planting and felling on its own estates.

##### The Coillte Estate

It is Coillte's policy to achieve the maximum volume potential of the estate consistent with sustainable forest management principles (see Section 4).

##### **Key Objective 1**

**In the Northwest BAU, Coillte aims to produce approximately 1,916,000 cubic metres of wood from its forests between 2016 and 2020.**

**1,603,000m<sup>3</sup> of this will be provided through felling and 313,000m<sup>3</sup> of this will be achieved through thinning.**

Coillte does not intend to acquire new lands for forest planting in the Northwest BAU during the 2016-2020 periods.

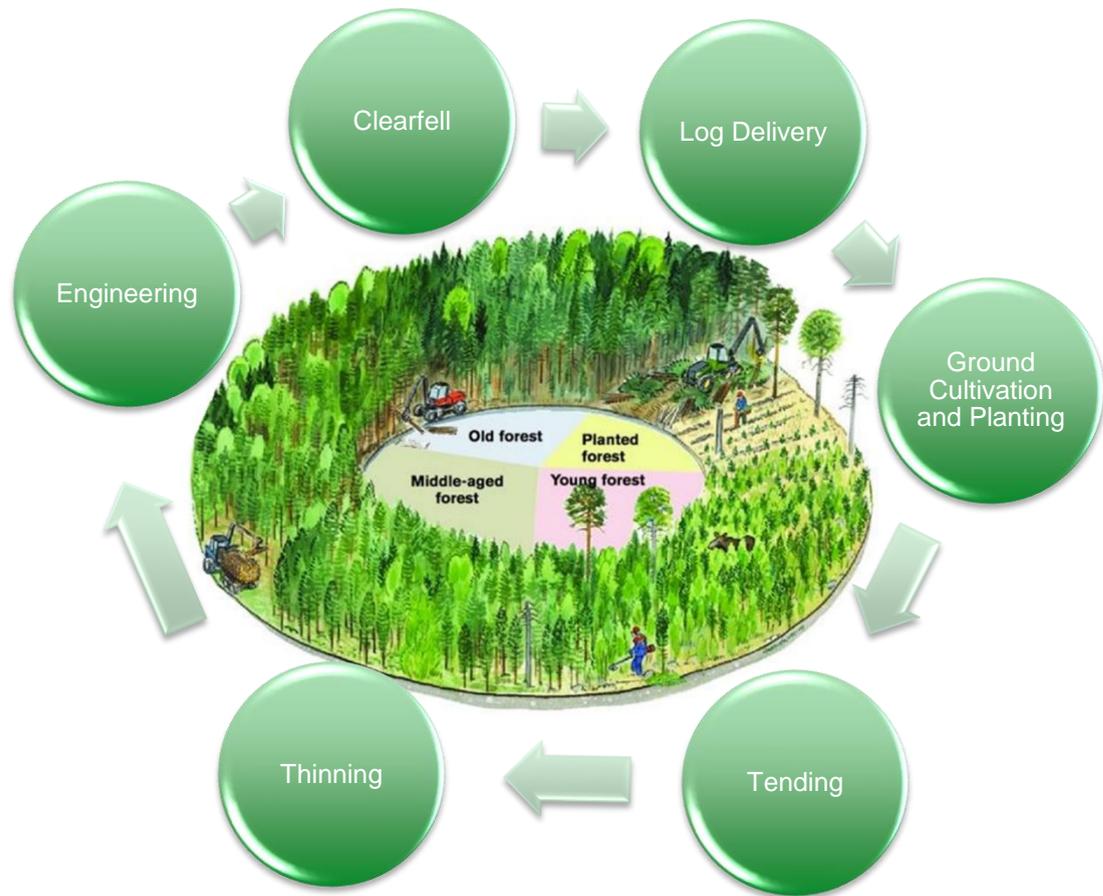


Figure 1: The Forest Cycle

Timber supply comes from two main sources, clear felling and thinning.

- Clear fell** is the most common silvicultural system used in Ireland and the UK due to the prevailing forest culture and has predominated over the past century characterized by the establishment of new forest plantations. The extent of clear felling annually is strictly controlled both externally and internally. Externally, the extent of annual clear felling is subject to statutory control by the Forest Service. Internally, control is exercised by the Coillte policy of 'Sustained Yield'. Sustained yield allows our forests to grow and be harvested at a level that is capable of providing a continuous supply of timber for current and future generations. Coillte has introduced a number of Low Impact Silvicultural Systems (LISS) which will apply to some forests in the area. The clear fell system will, however, remain the dominant silvicultural system in the BAU during the plan period. This involves the removal of all marketable trees from an area at the end of the rotation (usually at between 35 to 45 years of age). Due to the poor fertility and the exposed and unstable nature of our sites there is very little scope for alternative systems that remove mature trees more gradually. At clearfell time considerable effort is now put into adjusting felling coupe size and shape to satisfy both environmental and landscape design purposes. Low Impact Silvicultural Systems (LISS) such as 'Small Coupe Felling', 'Change to Broadleaf' and 'Continuous Cover Forestry' are in use in the BAU and it is intended to expand this level where possible during the plan period.
- Thinning** is also a natural part of forest management and it involves staged removals of a proportion of trees in a forest over a rotation, and it is a necessary part of standard forestry practice

worldwide. Thinning improves the quality of the forest by regulating the space and light provided to trees as they grow. In line with international best practices, Coillte aims to thin where possible all forests to maximise the quality and volume returns from the estate. Thinning will only occur where the practice can be sustained, namely in forests with no stability threat from high winds. High winds and exposure in the BAU is a limiting factor to thinning and consequently thinning is effectively concentrated in certain areas of the BAU where it is not as exposed and deemed to be more stable. Historically, because of stability concerns, there is limited standard thinning prescriptions used in this BAU with most thinning events having 2 or 3 interventions. The experience in the BAU to date is that thinning interventions of 3 or more often result in wind blow and are therefore not recommended in certain areas of the BAU.

All felling is controlled by the Forest Service which issues felling licences as appropriate under the 1946 Forestry Act. Coillte will ensure that all harvesting operations meet Forest Service license requirements and are planned at site level, with full assessment of environmental impact, landscape sensitivity, local consultation requirements and relevant site issues.

All felling proposals for either clear felling or thinning will be consulted on in advance with local authorities, Inland Fisheries Ireland and also the National Parks and Wildlife Service; their recommendations are then fully considered.

### **New Planting and Replanting**

Under the terms of felling licences, Coillte will fulfil its obligations to replant clearfell areas.

#### **Key Objective 2**

**In the Northwest BAU, Coillte aims to restock 7,101 hectares of forest by 2020**

### **Forest Roads**

Forest Roads are an essential element of forest infrastructure. They provide access for management, harvesting and transport of timber and enhance the recreational potential of forests. A number of kilometres of new road are constructed each year in the Northwest BAU and there is also the need for maintenance of the existing road network. Our policy is to give each local authority a schedule of areas for harvesting and associated timber volumes, for the next five years and agree designated timber haulage routes with them. Our engineering staff has indicated the optimum layout of our road network and we are gradually extending the roads to this point. This work is ongoing and will not be complete within the timeframe of this plan.

The priority for the road infrastructure over the duration of this plan is to;

- construct approximately 15 km annually of new roads in our forests
- maintain the existing road infrastructure
- extend spur roads where necessary to access timber stands due for harvesting in the period of the plan
- develop road access to areas that are currently inaccessible

#### **Key Objective 3**

**In the Northwest BAU, Coillte aims to construct approximately 77 km of new forest roads by 2020.**

## Factors affecting timber supply

A number of considerations affect the volume of timber that Coillte can achieve from its forests:

- **Accessing timber crops** can be challenging with both internal (right-of-way issues, poor internal access) and external (right-of-way issues, the state and nature of county council roads/bridges etc.). To address the access issue a list of all difficult areas is currently compiled and these will be prioritised on the basis of timber supply and a plan put in place to address these issues by assigning relevant personnel. The BAU will consider the use of partnerships to help resolve/contribute to access difficulties on a site by site basis. In addition, a review of the road infrastructure will occur and all new haulage routes will be identified in conjunction with Donegal/Sligo/Leitrim Co Councils with a view to improving access.
- **Nutrient deficiencies** The Northwest BAU has a large area of Sitka spruce which is 'in check', much of which was planted in the 1980's. In many cases these crops were planted in anticipation that site nutrition would be supplemented with fertiliser applied from a helicopter. The Northwest BAU is currently reviewing these areas in check and their suitability for fertilisation. This encompasses environmental sensitivities and an economic cost/benefit analysis along with the necessary foliage analysis. If the silvicultural argument is strong in terms of fertilisation we will proceed to apply for a licence to aerial fertilise those areas in 2011 and conduct consultation with all relevant bodies with regard to safeguarding watercourses and comply fully with Forest Service guidelines on aerial fertilisation. Coillte will continue to evaluate other ground based alternatives on an ongoing basis.

In addition, to reduce if not eliminate future fertilisation programmes, a more cautious species selection is being applied with the less nutrient demanding lodgepole pine conifer species now being the primary species in the BAU.

- **Meeting increasingly challenging environmental standards** requires Coillte to review its practices and assess the risks on a regular basis. Coillte has achieved sustainable forest management certification and is committed to ensure that there is continual professional development and refresher training for all staff, personnel and contractors to ensure a high environmental awareness and work standard is maintained. This will incorporate a wide range of training days and courses on all environmental issues and continued co-operation with all statutory stakeholders.
- The provision of a harvesting **infrastructure** that can respond to the environmental challenges will require ongoing training and monitoring of contractors and engaging in all relevant updates on developments in harvesting technology and machine capabilities. This is seen as a central requirement for all contractors wishing to operate in the Northwest BAU.
- The **high proportion of low production forests** in the Northwest BAU is an issue in meeting production targets and the BAU will examine alternative uses in some of these forests as a result. Thus the BAU will actively consider alternative land uses such as wind farm development, one-off property sales and the continued adoption of the Western Peatland Protocols for the alternative management and restocking of these low production sites.
- Sometimes the **popularity of forests for recreation** affects our capacity to fell timber.

## Farm Partnerships

In relation to existing farm partnerships Coillte will:

- develop 10 year plans for farm partnerships that have been in existence for 10 years
- hold annual management meetings with farm partners
- thin farm partnership sites regularly and on time
- carry out an inventory on farm partnership sites

**Key Objective 4**

**In the Northwest BAU, Coillte aims to manage its 33 Farm Partnerships**

**Overall production targets in the Northwest BAU 2016-2020**

Coillte's proposed operating targets for the Northwest BAU for the period of the plan- 2016-2020 are summarised in the table below.

**Northwest BAU main Coillte production targets 2016 – 2020<sup>4</sup>**

<b>Annual Totals</b>					
<b>Year</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>Establishment</b>					
<b>Planting (ha)</b>					
Regeneration planting (r/f) (Replanting after felling)	1362	1394	1285	1307	1753
<b>Harvesting Programme</b>					
<b>Harvest categories (000m3)</b>					
Thinnings	62	63	56	67	64
Regeneration felling (P,C,W) felling	379	320	286	282	337
<b>Total</b>	<b>441</b>	<b>383</b>	<b>341</b>	<b>349</b>	<b>401</b>
Felling area (ha)	1,318	723	605	615	796
<b>Roading Programme</b>					
<b>Roading (km)</b>					
New	25	13	15	14	10
Upgrading	29	28	24	23	24
<b>Total</b>	<b>54</b>	<b>41</b>	<b>39</b>	<b>37</b>	<b>34</b>

<sup>4</sup> Source: Forecast 2016 – 2035 obtained from Coillte Strategic Plan. Actual volumes may vary resulting from an annual refresh of the strategic plan. On an annual basis, over the plan period, Coillte will identify and publish areas where significant differences occur to figures originally published.

### 3.3 Coillte's Non-timber Businesses in Northwest BAU

#### 3.3.1 Renewable Energy Projects

Coillte is developing renewable energy projects both on its own, in conjunction with co-development partners and with third party developers who require the lease or purchase lands from Coillte in order to facilitate these developments or an easement over the estate to develop their projects. In working to realise the potential of its estate for renewable energy development, Coillte carefully considers the social, economic and environmental impact a project may have on the surrounding area.

All wind energy proposals that concern the Coillte estate are assessed by Coillte in the first instance via a screening exercise approvals process that includes an environmental impact appraisal. If negative impacts are found, Coillte does not facilitate a situation where these proposals could be put forward to the relevant Planning Authority for their assessment.

However, Coillte is not a Planning Authority for the purposes of undertaking an Environmental Impact Assessment and granting planning permission in accordance with the Irish Planning and Development Acts (as amended). In the interests of proper planning and sustainable development, the suitability of wind farm development proposals on Coillte property is a matter for the relevant Planning Authority.

Within this BAU Strategic Plan period, Coillte proposes to develop or facilitate a third party develop the following 4 planning permitted projects:

<b>Proposed planning permitted wind turbines on Coillte estate - correct as at January 2016</b>			
<b>Name of Wind Farm</b>	<b>Location</b>	<b>Status</b>	<b>No. of wind turbines</b>
Drumahough	Cark Forest, Co. Donegal	Planning permitted	13
Lenalea	Cark Forest, Co. Donegal	Planning permitted	9
Glenalla	Rathmullen Forest, Co. Donegal	Planning permitted	1
Doon	Curlews Forest, Co. Roscommon	Planning Permitted	1
<b>Total</b>			<b>24</b>

Also within this BAU Strategic Plan period, planning permission will be sought by a third party for the following project:

<b>Proposed project that is seeking planning permission on Coillte estate – correct as at January 2016</b>			
<b>Name of Wind Farm</b>	<b>Location</b>	<b>Status</b>	<b>No. of wind turbines</b>
Carrickaduff	Killygordan and Croghonagh Forests, Co. Donegal	In Planning	39
<b>Total</b>			<b>39</b>

Over the course of this BAU period, Coillte will continue to seek out opportunities for small, medium and large scale renewable energy developments on sites that are either designated as being open for consideration or suitable for this type of development. In all instances, Coillte will avoid impacts on nationally designated sites, protected habitats, Coillte's own biodiversity areas, receiving waters and high conservation value forest areas.

Depending on project specific circumstances, turbulence felling or the realisation of relevant habitat management plans may be required as part of that project. In all relevant instances, turbulence felling will be kept to a minimum and only occur where it is required in order to ensure the safe and efficient operation of a wind farm project. In all instances where premature felling is required, Forest Service requirements regarding the provision of replacement lands will be complied with and for turbulence felled areas, a restocking management plan will be implemented that will involve the re-establishment those areas in place of the crop that is felled.

### **Key Objective 5**

**In the Northwest BAU, Coillte aims to continue to facilitate the development of 5 renewable energy projects in the period to 2020**

### **Biomass Production**

Coillte will consider renewable heat supply opportunities as they arise.

#### **3.3.2 Land sales and development**

Each year the BAU sells, leases or develops a limited area of land, for purposes other than forestry. Most sales are made in response to local demand and typically comprise house sites, isolated dwelling houses, small outlying forest properties, small areas of forest to neighbouring land owners, gravel pits, land to local authorities for infrastructure projects and land for development. Properties sold are those where their value greatly exceeds their value for forestry purposes. A signing-off committee within the company considers all land sales, with larger sales requiring the approval of the Board of Directors. Joint development approaches with local communities are favoured.

It is important to note that no development or lease of lands will be entered into until the consultation/planning process is completed. This includes consultation in particular with local people and communities.

In the course of the period of this plan, properties will be identified which are considered suitable for sale or lease and we will endeavour to consult with the people likely to be affected as these arise.

Coillte also recognises the importance of having its property portfolio registered on the Land Register maintained by the PRA. Coillte will continue to work with the PRA and relevant parties in this regard

#### **3.3.3. Licensed use of Coillte lands**

Whilst Coillte has an open access policy for walking, it has a policy to develop the commercial potential of its lands by permitting its use by groups or individuals for other recreational and commercial activities. The company aims to maximise revenues from licensed use. Examples of such activities are archery, shooting, adventure walks/runs, pony trekking, off-road driving/rallying, orienteering and others as requested. The position in regard to these activities and which benefit both Coillte and the applicant is that permission is given under written licence from Coillte. The licence is the formal permission allowing the activity to take place on Coillte lands. It contains a number of conditions and some of these conditions are geared towards the

activity and the particular location. Responsibility for issuing the licence, management, processing and safekeeping, rests with the manager at the location. A fee based on the activity is charged for each licence.

### 3.3.3.1 Licensed Hunting

Game hunting and deer stalking are amongst the oldest forms of forest recreation and continue to be legally enjoyed by many people across the country. Respecting the traditional nature of this activity and recognising the social, environmental and economic benefits which hunting can have, Coillte may permit certain types of hunting on designated areas of the estate. This is in line with Coillte's [Recreation Policy](#) and [Deer Management Policy](#) as well as supporting the principles of multiple use forestry.

Hunting is managed and regulated through the issue of licences which are subject to open public tender. Available areas are advertised bi-annually via the company's website [www.coillte.ie](http://www.coillte.ie). Tender bids are [evaluated](#) by the relevant BAU personnel in accordance with a standard scoring matrix which acknowledges the annual fee offered, the applicant's previous experience, their commitment to safety, as well as environmental and local interest considerations. Coillte is moving toward a position whereby only persons who have completed an approved competence assessment will be permitted to hunt on its lands. Currently this is a mandatory requirement for all those intending to hunt wild deer.

Coillte have produced [code of practice](#) which establishes minimum standards expected of all persons engaged in these activities alongside compliance with licence conditions and national legislation.

## 3.4 Community, recreation and tourism Proposals

Coillte's proposed recreation priorities for the North West BAU between 2016 and 2020 include:

- engaging with local community groups and where possible agreeing partnership arrangements for the maintenance and enhancement of existing facilities and possible development of new ones.
- managing and maintaining all existing recreation sites including waymarked ways to the highest standards.
- managing unauthorized usage of the recreation infrastructure in line with best management practice
- sourcing funding and developing new infrastructure including 'access for all' on a based on needs identified in conjunction with stakeholders and funding agencies, and to enhance local tourism potential. The key projects in this BAU over the period of this plan are: :
- engaging with Bord Fáilte and other organisations as appropriate to promote Ards Forest Park and other BAU1 properties as key stops on the Wild Atlantic Way
- Continuing our exploration of the development of amenities with Donegal/Sligo/Leitrim County Councils
- Organise local events for National Tree Week, National Trails Day and National Heritage Week.
- Agreed as part of its annual recreation maintenance plan to consider simplifying signage and include information on cultural history, origin, recent management and biodiversity key species at Brackloon wood.

### The Wild Nephin Project

This project consisting of a joint venture between Coillte and the National Parks and Wildlife Service,(NPWS), with support from Mayo Co. Council and local organisations. Its supports a range of recreation, and Environmental objectives.

The information below gives some background to the project.

*The Wild Nephin Project is about setting aside an extensive area in the Nephin Beg Mountains in the BAU for the development as a wilderness area. The concept of an officially designated "wilderness area" has been part of the North American legal system for almost 50 years following the enactment of the Wilderness Act (1964). In 2009, the European Parliament recognised the need to provide such areas in an increasingly urbanised and developed Europe and called on member states to look at setting aside lands as wilderness or "restoring" lands to primitive qualities where man has the opportunity to engage closely with nature and the natural habitats. Given Coillte's considerable competencies in habitat restoration, its major land ownership in suitable areas and its roles in recreation and partnership building, the company feels it has the competency to act on this call and contribute to the development of an important national asset for future generations. Within this context the project steering group comprising representatives from Coillte, the National Parks and Wildlife Service and the Forest Service was established in 2011 to develop a definition of wilderness in Ireland and consider, initially, the suitability of the Nephin Forest as a wilderness area.*

*In an Irish context, wilderness is a new concept. Wilderness is best defined as a large, remote, wild (or perceived wild), protected and publicly owned landscape with good visual and natural qualities. A wilderness facilitates humans to experience our connections to the larger community of life through the enjoyment of nature, solitude and challenging primitive recreation, without significant human presence or the intrusion of human structures, artefacts or inappropriate activities while supporting a functioning ecosystem. A wilderness is therefore generally free from human management and manipulation and is an area which allows natural processes take place or where, through a process of rewilding, such natural processes are progressively restored, leading to increased stages of naturalness. A wilderness can include modified landscapes that no longer support long term human occupation and/or a viable managed landscape. Nephin as a forest block was found to offer the necessary characteristics to allow the area develop as a wild landscape. In November of 2011, Coillte agreed to set the area aside as a candidate wilderness area pending the development of a conversion plan. It is recognised by Coillte that the setting aside of the wilderness will have long term implications for the commercial exploitation of this forest into the future. For the avoidance of doubt the setting aside of the area as a wilderness will mean that all exploitation will cease post conversion and be seriously constrained during the conversion period.*

*The wilderness project is an innovative project that can deliver considerable benefits on a number of levels. The project will set aside a unique landscape in an Irish context with the potential to re-wild the landscape to provide important habitats, biodiversity improvement, adventurous and challenging recreation within a protected landscape of significant scale. This project has potential to deliver environmental, social and economic benefits to the wider community in the hinterland of the wilderness while "improving" access to a unique and challenging landscape for recreation and scientific uses. This project will improve public access by walking or hiking to the entire eastern portion of the national park lands through the Coillte forest, develop sustainable walking routes on both Coillte owned lands and national park lands to alleviate pressure on sensitive habitats within the national park and allow for future habitat and species enhancement projects to occur to further enhance the biodiversity of the National Park and the Forest.*

*In 2011, a Memorandum of Understanding was exchanged between Coillte and National Parks and Wildlife Service for the purpose of protecting, developing and ultimately managing the Nephin Forest Areas and adjacent National park lands as a wilderness area. The Memorandum of Understanding sets out the general parameters under which the management and development of the Nephin Forest and the adjacent National Park lands as a wilderness can be taken forward. Although this document is not legally binding, the parties to this MoU acknowledge that each party has come to this process in a spirit of collaboration; that the basis of the MoU is partnership and that consensus should be the basis on which all decisions are taken and all progress made.*

**The main agreements stated in the MOU include:**

1. *The commitment of the parties to this MOU is for a period of 50 years with a review of management arrangements after 5 years.*
2. *The parties agree to develop a master conversion plan for the Nephin Forest and the adjacent national park lands which sets out all the issues relating to the development and subsequent management of the site as a wilderness area. The parties will jointly agree on the conversion process for the forests lands to include harvesting, reforestation and or habitat restoration. This process will be subject to agreement with the Forest Service.*
3. *The parties will jointly agree on the access and use policy for both Coillte and NPWS lands in line with the recommendations in the feasibility study, the conservation objectives of the National Park and the regulations relating to the Special Area of Conservation/Special Protection Area.*
4. *The parties will jointly agree on the appropriate level of development of facilities in or adjacent to the wilderness area in line with the feasibility study. Proposals for any works within the boundary of the wilderness will be brought to the Management Board for discussion and agreement.*
5. *The parties will jointly agree on the appropriate conservation initiatives in the wilderness area.*
6. *Coillte agrees to set aside the forest area categorised as primitive or semi primitive as a wilderness area free from all human exploitation on completion of the 15 year conversion programme. In the intervening period the parties agree that all works in the area will be agreed by the partnership.*
7. *NPWS agrees to set aside the area categorised as primitive or semi primitive as a wilderness area free from all human intervention subject to the conservation objectives of the National Park and the regulations relating to the Special Area of Conservation/Special Protection Area.*
8. *Public access is allowed in line with its company wide recreation policy and overall recreation policy agreed for the wilderness – it allows access on foot to responsible users. It is not envisaged that motorised or other vehicle access will be allowed in the wilderness area, and will be firmly controlled.*
9. *The parties will agree to the erection of appropriate signage of appropriate design on the site for the purposes of identifying the site as a wilderness area managed under partnership by the two organisations.*
10. *Coillte and the NPWS have consented to set aside for a period of a minimum of 50 years lands required to constitute their part of the wilderness post conversion. The NPWS and Coillte will retain ownership of their lands and the right to manage their lands, subject to the provisions of this set aside agreement.*
11. *The parties shall provide professional, technical, and other support that is available from normal resources to assist in the achievement of the objectives of the wilderness project*
12. *Where necessary and practical the partners agree to jointly explore sources of funding for exceptional costs associated with the wilderness project.*
13. *The parties agree to establish the Nephin Wilderness Partnership Board under this agreement to oversee the development and long term management of the project.*
14. *The Partnership may initiate and deliver projects/works where deemed appropriate.*
15. *The Partnership will consult with stakeholders and interest groups, on approaches and methods to be agreed at inception of each project.*

### Key Objective 6

**In the Northwest BAU, Coillte aims to:**

- **Provide a high quality recreation offering to public.**
- **Maintain all existing recreation sites to the highest standards**
- **Work in partnership with proactive communities to upgrade amenity sites**

### 3.5 Cultural heritage and archaeology measures in the Northwest BAU

Coillte as manager of the State's forestry estate has a duty to respect the cultural heritage attached to it. With support and advice from the NPWS it has developed a code of practice in order to protect this archaeological and cultural heritage.

The BAU will continue to protect archaeological sites on its lands and to note any new sites located during surveys. All recorded archaeological monuments are highlighted during the planning stage of operations. They are identified and protected as appropriate by the Forest Manager. Pedestrian access from the nearest public road is provided for such sites. Unrecorded archaeological monuments when located are immediately protected and reported to the Environmental Officer. The Forest Service Archaeologist is also notified who advises accordingly. The BAU will continue to support sites of cultural and literary heritage and will identify, protect and record all new items of heritage which are discovered on our lands.

### 3.6 Environmental enhancement measures

The following environmental enhancement measures are proposed for the period 2016 – 2020

#### 3.6.1 Diversification of species

Coillte policy is to encourage species diversification in order to maintain and enhance the productive potential of its estate and to increase biodiversity in its forests.

To reduce or eliminate the need for artificial fertilisation programmes, a more cautious species selection is being applied within the BAU, so that the species planted will not need supplementary fertiliser over its rotation. This effectively means we are pursuing a policy of planting lodgepole pine or pine/spruce mixtures on the low yielding sensitive sites. Diverse conifer species such as Scots pine can also be used in areas of shallow peat. Riparian zones are either left as open space or planted with suitable native broadleaf species.

#### 3.6.2 Practicing Low Impact Silvicultural Systems (LISS)

The selection of a silvicultural system on a forest site will be based on a number of different factors. The decisions will be based on: site stability, the management objective of the site (i.e. timber production or biodiversity), and the surrounding landscape.

The list below explains the area where the various silvicultural systems that collectively are known as low impact silvicultural systems (LISS) are adopted. Low Impact Silviculture Systems such as Continuous Cover Forestry, are regarded as alternative methods of silvicultural management to clearfelling. The introduction of LISS systems can only be achieved gradually and can take up to a rotation length to complete. Currently 13% of the productive area of the BAU, is managed under LISS.

Sites on Coillte Estate managed under LISS

1. Old Woodland Sites (OWS)
2. All Broadleaf High Forest (BHF) stands are to be managed under CCF

3. Amenity sites
4. Agreed Biodiversity Areas where current or target habitat is woodland where appropriate according to Biodiversity Management Plan
5. Management Units currently listed for management under LISS, where silvicultural system equals Small Coup Felling (SCF), Continuous Cover Forestry (CCF), Long Term Retention (LTR), Natural Regeneration (NRE)
6. CCF demonstration sites
7. Scots pine stands, where stability and vegetation provides for Natural regeneration

### Key Objective 7

**In the Northwest BAU, Coillte aims to maintain and enhance the level of broadleaves in the BAU**

### 3.6.3 Biodiversity

At present 23% of the Coillte land area in the Northwest BAU is designated as biodiversity.

Principal methods of retaining biodiversity in the BAU will include:

- **Retention of Old Woodland Sites (OWS)** which have supported woodland cover since at least 1830 and which have particular importance as reservoirs of native biodiversity. The BAU has 2,011 ha identified as old woodland. The management of these areas will be in line with Coillte's old woodland sites policy which includes assessing the value of any OWS before felling and high impact operations for designation as high nature value forests, and reviewing all sites that received a good rating from ecologists in the biodiversity survey in 2001- 2005 for HCVF potential.
- **Continuing the introduction of riparian buffer zones** as part of the planning process along all permanent watercourses, stream buffer zone management will follow Forestry and Water Quality Guidelines and all other pertinent statutory guidelines. Aquatic buffer zones are established primarily for water protection purposes, and not for timber production.
- **Long term retention** of some mature trees is practiced to enhance environmental, landscape and social benefits of our holdings. The target for the period is to set aside approximately 980Ha or 1.6% of the gross area of the BAU for long term retention. These sites have been selected based on ecological, recreational and landscape criteria. Long term retention will allow trees on these sites to grow beyond maturity and or be let grow indefinitely. Scots pine is the only conifer tree regarded as a native species. This tree has limited distribution west of the Shannon and it is our policy to retain them long term where it's possible and safe to do so.
- **Retaining dead wood** in all forests managed by Coillte, consistent with health and safety requirements. Ecologically, dead trees are as important as live ones in natural forest ecosystems. They are important structural elements in forest, providing a wide range of decay classes, which support a wide range of invertebrate and vertebrate animals and epiphytic and saprophytic plants and fungi. Dead and decaying wood can provide habitats for more than one-fifth of the woodland fauna. In the UK, 34% of scarce invertebrates depend upon dead wood. Dead and decaying wood also influences the flow rate and organic debris in forest streams and rivers. The intention is that the concentration of deadwood will be the highest in semi-natural woodlands (old woodland sites and broadleaved stands) where large trees will be allowed to grow old and die off on site. On all sites being surveyed by inventory staff, deadwood stems are being recorded.
- Carrying out **survey and monitoring** of important species and habitats, and of water quality to ensure that we are making progress.
- Participating in **biodiversity action plans** for priority species and habitats in partnership

with others.

- Long term **water quality improvement** through changes in practice and the reduction in use of chemicals
- Monitoring sites that were the subject of **EU LIFE projects** during the period of the last BAU strategic plan, and engaging with partners in developing new habitat management projects.
- **Controlling invasive species** (such as Rhododendron) on the Coillte estate, through planting of appropriate species.
- Coillte are committed to implementing a maintenance program for the **native woodland sites** over the duration of the plan.

**Key Objective 8**

**In the Northwest BAU, Coillte aims to review, manage and maintain the areas of biodiversity.**

## 4. Sustainable Forest Management Policies and Proposals

Coillte manages its forests to FSC® and PEFC™ Forest Certification Standards, ISO 14001 Environmental Management Standard and OHSAS 18001 Occupational Health and Safety Standard.

### 4.1 Using Forest Design

The BAU recognises its responsibilities to ensure that its forests are planned and managed in a manner that enhances the landscape. BAU team members have been trained in forest landscape techniques and design. All of the forests (and associated properties) have been given a landscape sensitivity designation of high, medium or low. Each forest therefore requires attention to a greater or lesser extent based on these ratings. The production and implementation of a landscape plan is a constantly evolving process which is under continuous review.

A number of factors will be addressed when drawing up a landscape plan. Felling coupe size is one of the most important of these. As a general rule felling coupes adhere to Forest Service regulatory guidelines, at the time of publishing is a maximum of 25ha. To this extent, BAU team members have identified coupes which were greater than 25ha and redesigned/restructured these areas as necessary. There may be situations where felling coupes of greater than 25ha will be necessary, and these will be treated on an individual basis, with the appropriate assessment and consultation process carried out prior to any felling taking place. Other factors and constraints which need to be considered are; age and structural diversity, limited species selection, soil type, windthrow risk, elevation, deer abundance and buffer zone management. These factors are by no means exhaustive. For example, in recent times the disease *Phytophthora ramorum* has spread in certain locations in Ireland. The disease can kill Larch species, which was always considered a valuable species in terms of providing colour in a landscape. While the disease has not been detected in this BAU as yet, it will have an impact on species selection when planning landscape design.

Given the overwhelming occurrence of streams and waterways in the forests in this BAU, much of our forest design plan centres around buffer and riparian zone management. As current coniferous crops are clear felled, opportunities arise to create riparian areas both within and around the forest properties. These new areas will be managed as a mixture of open space and native broadleaf species such as Rowan, Birch, and Willow.

### 4.2 Water Protection

Coillte's Policy on water protection and water monitoring is outlined in "Water Protection and Forest Operations Guidelines". This document outlines current best practice in minimising the impacts of forest operations on water quality.

Compliance with the Forest Service's Code of Best Forest Practice, which includes a series of Requirements, Guidelines and Notes, the following are the most relevant to water protection; Requirements on the Freshwater Pearl Mussel and Aerial Fertilisation, Guidelines on Water Quality and Harvesting and an Information Note on Appropriate Assessment Procedure is strictly adhered to.

Through the implementation of the Environmental Risk Assessment procedure under the Environment Management System, the most sensitive sites are identified and additional mitigation measures above and beyond to what is routinely adopted are recorded and implemented during the course of the forest operations.

Amongst the suite of mitigation measures that can be selected by the forest operations manager, one of the most important is the establishment of buffer zones on all significant watercourses within the forest. If not already in place from the time the forest was initially planted, a naturally vegetated buffer zone should be established either at thinning or clearfell & restock stage. On very sensitive sites, such as in the prioritised Top 8 Freshwater Pearl Mussel Catchments, the buffer zones are actively managed and small groups of native broadleaves are planted to hasten the development of a mixed open space/scrub woodland habitat.

Other routine measures, include the restriction of when operations can occur in the year, the provision of silt traps, the minimisation of machinery movement in the buffer zone, extraction route layout and use of brush and the design and location of temporary bridging over watercourses within the operations site, Furthermore, to address the risk of oil spillages from forest machinery, a pollution control plan is included in the Management Unit Site File (MUSF) and a pollution control kit is on site for all high impact operations.

Forest operations are actively managed and monitored. On the most sensitive of sites, daily visual monitoring is conducted of all watercourse exiting the operation's site and records kept. On a selection of these sites, short-term water sampling of 'high impact' forest operations described in Section 2.8 is carried out. In addition, a network of long term fixed sampling sites on selected rivers has been established in each BAU. The purpose of this sampling is to determine the cumulative impact of forests and associated forest practices have on water quality. Sampling is conducted at least three to four times a year, increasing to at least 6 times in areas of intense forest activity is taking place.

A long term forest ecosystem monitoring plot, part of a national and EU network of tree health plots, has been located in Brackloon Forest since the early 1990s. Ongoing intensive surveys of forest health and the environmental factors thought to predispose trees to damage from biotic and abiotic sources is conducted and entails visual assessments of tree health with a host of other parameters such as soil and soil water surveys, air and rain water quality, tree deposition water quality, tree growth data, tree foliar chemistry, ground vegetation composition and meteorological data. The results are then analysed to determine which factors impact most significantly on forest health nationally and across Europe. This study is conducted in conjunction with the Forest Ecosystem Research Group of University College Dublin and co-ordinated internationally by the International Cooperative Programme Forests (ICP Forests) in collaboration with the Directorate-General for Environment of the European Commission. It is funded by the Forest Service, Department of Agriculture, Food and the Marine with financial support from the European Commission under Community Regulation 2152/2003 also known as "Forest Forest Focus" and the EU Life Nature Programme 'FutMon'. Arising from the high proportion of peatlands in the BAU and consequent environmental sensitivity, the BAU facilitates a number of ongoing nationally funded Forests & Water Projects, such as HydroFor (led by UCD in conjunction with UCC & NUIG), CROW (involving UCD and the Woodlands of Ireland) and SANIFIC (NUIG), by providing forest management information and allowing regular access to headwaters of rivers located in the West BAU forest properties. Monitoring at these study sites entails a wide variety of ecological surveys, including vegetation monitoring of established aquatic zones and biological and physio-chemical assessments of waters draining active forest operation sites. The findings from this national research will test the efficacy of the current Water Guidelines dating from 2000 and suggest where they can be updated to take account of changes in forest practice over the last 13 years. The BAU has a long standing close working relationship with the Marine Institute in Newport, Co. Mayo and worked together on several Forests & Water Projects over the last number of years. The results of which have furthered our knowledge on the complex interaction between forests and water, leading to changes in forest management practices to reduce the potential for impacts on water quality on peatland sites.

Finally, the BAU when planning forest operations consults with regulatory, statutory and interested stakeholders on the topic of water, including the National Parks and Wildlife Service, the Inland Fisheries Ireland and Co. Councils.

### **4.3 Reducing use of chemicals**

#### **Pesticides**

Coillte uses an integrated pest management approach; a core principle of Coillte's Environmental Management System and both the FSC and PEFC certification schemes. As such, Coillte is committed to reducing its pesticide usage and, where possible, to using non-pesticide methods to control pests and weeds. Pesticides are applied only when absolutely necessary due to environmental considerations and cost. The decision to apply a pesticide is based on a site

assessment, and only taken where non pesticide control options are unlikely to give sufficient protection at a reasonable cost. When pesticides are required, only those approved for use in forestry by the Pesticide Registration & Control Division (PRCD) of the Department of Agriculture, Fisheries and Food (the regulatory body for pesticide use in this country) and FSC listing of Hazardous Chemicals are used. All spraying is targeted, using hand operated sprayers only.

Where pesticides are required, their storage, usage and disposal all comply with national pesticide legislation, EMS, FSC and PEFC guidelines and Health and Safety guidelines.

### **FSC Implications**

Coillte is currently certified under the Forest Stewardship Council (FSC) forest certification scheme, a voluntary international forest certification scheme. Under this scheme cypermethrin is classed as 'highly hazardous' and can only be used in FSC-certified woodlands, under a derogation from FSC International. Coillte's cypermethrin derogation extends to March 2021. A copy of the application can be viewed at this link : [Application](#)

A public consultation process has been completed with stakeholders on the derogation for continued use of cypermethrin. This robust public consultation process included direct contact with five hundred stakeholders over a 45 day period, the derogation application was also publically available on Coillte's website for the duration of the consultation period. In addition, a representative from the FSC and Soil Association, visited Ireland to review the derogation process and met six stakeholders to discuss the issues around the use of cypermethrin. As part of this process, the use of cypermethrin in Coillte's nursery at Ballintemple and in the forest was also fully reviewed. In addition the representative looked at a number of trials on the use of alternatives to cypermethrin, which are ongoing in the forest. They also reviewed Coillte's environmental and safety procedures.

Coillte are currently implementing the conditions and will be reporting on the implementation at its next FSC audit. The pesticide derogation approval and conditions can be viewed at this link: [Approval](#)

### **PEFC Implications**

Coillte is currently PEFC certified and the PEFC Irish Standard allows use of cypermethrin, as it is legally registered for use in Irish forests by the Pesticide Registration and Control Division of the Department of Agriculture, Food and the Marine.

### **Fertilisers**

Application of fertilisers to areas to be restocked is only carried out where site fertility is low. Where tree crops develop nutrient problems in later years, foliar analysis is undertaken to determine the quantities of fertiliser to be applied. Where required, aerial fertilisation is carried out on thicket stage crops. Approval from the Forest Service is required for aerial fertilisation. This requires the submission of detailed plans and consultation and agreement from the County Council, Fisheries Board and NPWS. Adherence to the Forest Service Guideline on aerial fertilisation is mandatory. A forest crop is described as 'in check' when tree growth is negligible or has ceased altogether. This usually occurs before canopy closure on nutrient poor sites, when the forest is still incapable of recycling the limited amount of available nutrients within the crop.

## **4.4 Working With People**

Coillte's policy is to consult widely with stakeholders in formulating its management plans, policies and objectives. Examples of how Coillte consults with its stakeholders are outlined below:

- Consultation on our BAU felling plans takes place on a formal basis with the Forest Service, Fisheries Boards, National Parks and Wildlife Service and County Councils within the BAU;
- Coillte consults at national level on new policies in relation to its forests, at BAU level on its BAU strategic plans and at forest operational level in advance of all high impact operations. The BAU strategic plans are currently reviewed on a five year cycle;
- Each BAU have a social and environmental panel which meets annually as part of Coillte's continuing consultation and engagement. This forum allows Coillte, and environmental, social and community interests to discuss issues of common interest. The minutes of these BAU panel meetings can be viewed at the BAU head office if required. For more information on the panels, click on <http://www.coillte.ie/about-us/social-responsibility/consultation/>
- Coillte continue to explore opportunities to improve public participation in forest management;
- a comprehensive stakeholder list is held in each of the BAUs. This includes names of local community groups, statutory organisations, non-governmental organisations, farm partners, contractors, customers, complainants, and many other stakeholders. Coillte carry out an annual update of our stakeholder list to ensure that our records are as accurate as possible;
- Coillte welcome any member of the community and stakeholders in general to view our website [www.coillte.ie](http://www.coillte.ie) to find out more about what we do. Coillte also encourage stakeholders to make contact with us so that we can answer queries, consider views and respond to any issues raised.

### **Coillte's stakeholder engagement process on its BAU strategic plans**

It is Coillte's policy to engage widely with stakeholders in formulating its management plans. The BAU strategic plans set out a vision for the forests in each business area unit, and also, how Coillte policies and objectives will be implemented at Business Area Unit level during the period of the plan.

The purpose of Coillte's BAU strategic plans is to set out plans for forest management activities that take place in each of our BAU's. In compiling these plans Coillte apply principles of environmental impact assessment and risk management on potential interactions between forest activities and receptors such as water and soils, biodiversity, archaeology & cultural heritage, landscape, people and material assets.

Some of the topics covered in a BAU strategic plan include the following: commercial planning, timber harvesting, timber sales, community facilities and benefits, environmental enhancement measures etc.

During Coillte's stakeholder engagement process on its BAU strategic plans, Coillte actively engage with stakeholders, in the following ways:

- national newspaper adverts
- regional newspaper adverts
- consultation via Coillte's website
- mail shots to our listed stakeholders
- flyers and notices about our consultation process at amenity site entrances
- forest office meetings (by appointment) which allow further feedback

The BAU strategic plan consultation process is carried out in two stages (scoping and draft plan stage) to take input from the public in relation to its BAU strategic plans. A map is produced as part of the consultation process, which reflects the areas targeted for clearfelling. This map forms the basis of public consultation and if concerns are raised about particular areas they are addressed at this time. Coillte endeavour to take on board inputs during this consultation process, while also balancing diverse opinions and contributions from the public in relation to these plans.

Stakeholders should note that Coillte on occasion have to make adjustments or amendments to our

felling plans for reasons such as silvicultural, landscape design, restructuring, market conditions, forest disease and windblow. Any changes are consulted on in line with Coillte's consultation procedures.

### **Incorporation of results of stakeholder engagement in this BAU**

Following Coillte public consultation processes, submissions received are acknowledged, logged on our internal system, and assigned to the relevant BAU or team for consideration and possible incorporation into our plans.

The detail in the following table outlines incorporation of changes, responses following consideration of consultation submissions for this BAU strategic plan as a result of submissions received from stakeholders/public during Coillte's public consultation stages (scoping and draft plan) carried out during 2015.

<b>Incorporation of changes, responses in this BAU plan</b>	
<b>Section reference in plan</b>	<b>Detail incorporated</b>
Foreword	<p><b>Coillte agreed to make the following changes to its plans following consultation with Mr. Neil Foulkes</b></p> <p>The following statement was added <i>"In practicing sustainable forest management Coillte's aim is to develop its forests in a way that is environmentally sustainable, socially sustainable and economically sustainable"</i>.</p>
1.2 Renewable energy	<p>Following the many wind energy submissions received by groups and individuals, Coillte considered each submission and ultimately responded to each submission through the preparation of a detailed Frequently Asked Questions document which is now incorporated in the faq section of our website <a href="http://www.coillte.ie/faqs">www.coillte.ie/faqs</a></p> <p>Coillte also updated Section 1.2 through the addition of specific focused sections regarding fossil fuels, Coillte's approach to public participation and consultation, wind energy, biomass and other renewable technologies.</p>
3.3.1 Renewable Energy Projects	<p>In response to some of the wind related submissions received, most notably one received from Mr. Anthony Cohu, Coillte updated the text in each BAU Strategic Plan such that it provides information that is correct as at January 2016 regarding the number of planning permitted projects and proposed projects that concern the Coillte estate. The information is now presented in an easy to reference table that provides details regarding the status of each project at the time of writing in addition to the number of wind turbines/MW proposed as part of that renewable energy project. In addition, wherever relevant, information is also provided about wind energy projects where Coillte has a direct involvement and those projects include a Community Benefit Scheme and / or additional benefits for the host communities.</p>
3.6.2 Practicing Low Impact Silvicultural Systems	<p>Coillte considered the inclusion of areas managed under LISS in each BAU plan, however this data is currently being actively reviewed and will be completed in the coming months. When completed Coillte will upload this data to its website.</p>
3.6.3 Biodiversity	<p>Key objective 7 in the Midlands plan was reviewed and updated.</p>
4.4 Working with people	<p>A web link for further information on Coillte's Social and Environmental Panels was added to this section.</p>
4.3 Reducing Chemicals	<p>Additional data was added to section 4.3 concerning Coillte's application to FSC for a derogation for the use of Cypermethrin.</p>
3.2 Clearfelling	<p><b>Following Coillte's consultation with WOI (Woodlands of Ireland) the following changes were made to Coillte's plans</b></p> <p>Coillte agreed to change current text <i>"Clear felling is a natural part of forest management"</i> to <i>"Clearfell is the most common silvicultural system used in Ireland and the UK due to the prevailing forest culture and has predominated over the past century characterized by the establishment of new forest plantations"</i>.</p>
3.6.3 Biodiversity (Continuing the	<p>Coillte clarified the statement in its text referencing that <i>"Buffer zones will not normally have a timber production target"</i>.</p>

introduction of riparian buffer zones)	
Appendix 2, Column 5	Coillte amended a misprint " <i>Issues to be Assessed</i> ", now corrected to read " <i>Issues to be addressed</i> ".
2.9 Forest Management Issues	<b>Following public consultation and engagement with the Irish Farmers Association (IFA). Coillte are also involved in the National deer management forum, The Wicklow Deer Management Partnership and other deer management groups in BAU South East.</b> Coillte have included additional information in terms of how it manages its deer population and statistics on deer species abundance in each BAU.
3.3.2 Land Sales & Development	<b>The following text addition agreed with Property Registration Authority (PRA) following consultation</b> <i>"Coillte recognises the importance of having its property portfolio registered on the Land Register maintained by the PRA. Coillte will continue to work with the PRA and relevant parties in this regard."</i>
1.2 Renewable Energy	Following consultation with Mountaineering Ireland (MI) Coillte's windteam propose to send Mountaineering Ireland a personalised notification about all wind farm projects that concern the location of wind turbines on the Coillte estate from February 2016 onwards.
4.4 Working with People	Coillte have agreed to hold an annual meeting between Coillte's head recreation team and MI to discuss any areas of concern, and any possible proposals which could provide mutual benefit.
<b>Specific to BAU 1 – Northwest</b>	
<b>2.3 Community, recreation and tourism facilities in the Northwest BAU</b> & <b>Appendix III – Recreation Facilities in the BAU</b>	<b>The following text added to the Strategic Plan and also submitted to be included on the Coillte Outdoors site as requested by Brian Smyth, Leitrim Dev Company</b> "A number of recreational facilities are the result of a joint initiative between Coillte, local authorities and local communities. Recent examples of this collaborative effort are developments such as <ul style="list-style-type: none"> <li>• Gortarowey, Union Wood and Knocknarea, Co Sligo</li> <li>• Glenfarne Wood, Milltown Wood, cycle and walking trails in County Leitrim.</li> <li>• Drumharriff, Drumboe and Ards forest park Co Donegal"</li> </ul> <p>"This BAU has 18 designated areas for recreational activity, and these are detailed on the Coillte website <a href="http://www.coillteoutdoors.ie">www.coillteoutdoors.ie</a> A list of woodlands in the BAU, designated for recreation, is available in Appendix III."</p>
<b>2.3 Community, recreation and tourism facilities in the Northwest BAU</b>	<b>General response to all submissions relate to the development of local amenity areas i.e Tim Coughlan, Lough Eske Community dev, Sean carney, Lough Eske, Eddie Carr, Calry Dev Association, Seamus O'Doherty, Rossylongan</b> "A number of submissions were made from a variety of local organisations as part of the consultation on the BAU Strategic Plan 2016-2020. The BAU team are keen to consider all submissions for the development of recreational areas across the BAU. All submissions will need to be carefully assessed to determine the potential usage of any such area and the availability of funding (internally or externally) for the development of any infrastructure."
<b>2.3 Community, recreation and tourism facilities in the Northwest BAU</b>	<b>Acknowledgement of close working relationship with Sligo County Council (Michael Carty) and Donegal County Council (Trails Office-Francis Conaghan)</b> "A number of recreational facilities are the result of a joint initiative between Coillte, local authorities and local communities. The BAU works closely with Sligo County Council and Donegal County Council, in particular the Donegal Trails Office. Recent examples of this collaborative effort are developments such as: <ul style="list-style-type: none"> <li>• Gortarowey, Union Wood and Knocknarea, Co Sligo</li> <li>• Glenfarne Wood, Milltown Wood, cycle and walking trails in County Leitrim.</li> <li>• Drumharriff, Drumboe and Ards forest park Co Donegal."</li> </ul>
<b>2.3 Community, recreation and tourism facilities</b>	<b>Submission re locked gates when trying to hike walk in remote scenic areas:</b> <i>Access to Coillte properties can only be provided within the constraints presented by local security requirements. Coillte deal on a daily basis with security issues such as dumping, anti-social</i>

<b>in the Northwest BAU</b>	<i>behavior and unauthorized motorized vehicles in our forest which result in use of increased numbers of barriers. These security requirements may be examined in the light of local demand and access may be facilitated through the issue of permits. In addition some areas are restricted for health &amp; safety, and other operational issues or for biodiversity and nature conservation. We ask all visitors to heed warning signs or employee directions, they are there to protect you and our forests. We do however feel that there are adequate alternatives if a specific route is not accessible.</i>
<b>2.3 Community, recreation and tourism facilities in the Northwest BAU</b>	<p>Submission re biodiversity enhancement and recreational requests:</p> <p><i>Coillte allocated financial resources to Brackloon over the recent past and it will be included in our annual maintenance management plans during the lifetime of this Plan. Coillte are liaising with our Recreational Team with the aim of ensuring its inclusion for consideration under any public funding that may become available.</i></p> <p><i>The potential for developing a walk along the Owenwee river will be included for consideration in any further development plans for the site.</i></p>
<b>2.3 Community, recreation and tourism facilities in the Northwest BAU</b>	<p>Submission re issues concerning Colonels Wood Knockranny not listed in BAU2 plan, not on list of old woodland sites; Greenway adjacent to it cause of increased incursion into the wood. Planned extension to green way will cause further tree loss.</p> <p><i>Knockranny Property is distinguishable in green on the maps accompanying the Strategic Plan. Colonels Wood is classified as OWS thus there is evidence the property has been under forest cover since 1830 and will be treated as such under Coillte's management plans. The Strategic Plan references old woodlands in section 3.6.3. Coillte has facilitated the construction of the Greenway extension at the request of Mayo Co Council and as part of this agreement, the local authority are responsibility for its upkeep and maintenance.</i></p> <p><i>Greenway development is limited to 3 metre width and the recent extension is constructed on what was previously an old track, thus minimising the impact of the surrounding vegetation. The Westport Greenway is very highly valued asset in the economic and tourism interests of Westport and Coillte recreation policy very much supports this type of community development.</i></p>
<b>2.6 Species and Habitats in the West BAU</b>	<p>Submission re species diversification in BAU2 draft plan</p> <p><i>The predominant soil type in BAU 2 is peat and species diversity is much influenced by the soil type available to us on the Coillte estate, but diverse species are utilised where conditions allow. Experience has taught us that western blanket peats are not tolerant to a wide variety of species. Western Hemlock would not be widely planted in Ireland. We produce sawlogs mainly for the structural sawn timber market and demand for Hemlock logs are limited. Western Red Cedar wood is very much in demand, however it only grows successfully in good mineral soils on the south and east coast. Likewise with Douglas fir. Your comments will be passed to our silviculture experts.</i></p>
<b>2.8 Water quality and protection in the Northwest BAU</b>	<p><b>Reference to request from Loughs Agency to look at broadleaf planting adjacent to salmonid watercourses</b></p> <p><i>"Coillte will continue to work closely with the relevant statutory bodies and assist where possible with their water and fishery rehabilitation plans. The BAU looks forward to continuing the work on buffer zone management with the Loughs Agency, in particular the potential for broadleaf planting adjacent to salmonid watercourses."</i></p>
<b>3.4 Community Recreation &amp; Tourism proposals</b>	<p>Included in plan: <i>Agreed as part of its annual recreation maintenance plan, to consider simplifying signage and including information on cultural history, origin, recent management and biodiversity key species at Brackloon Wood.</i></p>
<b>Appendix V.</b>	<p>The initial draft stated that between 2,500 and 3,000m<sup>3</sup> of timber will be removed from Brackloon in 2017 and 2018. This was a forecasting error and no timber will be felled in Brackloon during the lifetime of the plan.</p>

## 4.5 Monitoring and Evaluation

Coillte continues to monitor the achievement of its objectives and targets using the proforma set out in [Appendix IV](#). The results of this monitoring will be available at the end of the plan period and published on the Coillte website.

## Appendix I - Summary of Archaeological Sites in Northwest BAU

BAU	Type of Monument	No. In BAU	SMRS Number *
B1	Anomalous stone group	1	SL019-175----
B1	Barrow - mound barrow	1	SL031-018001-
B1	Barrow - ring-barrow	1	SL031-048----, SL038-005----
B1	Bawn	1	DG094-006001-, MA110-004001-
B1	Booley hut	1	DG085-006001-, DG085-006002-
B1	Building	1	SL014-076044-, SL014-076045-, SL014-076046-, SL014-076052-
B1	Bullaun stone	1	SL015-059003-
B1	Burial ground	1	MA100-152001-
B1	Burnt mound	1	MA038-205----, MA038-206----, MA038-207----
B1	Cairn - boundary cairn	1	SL019-171001-, SL019-171002-, SL019-172----
B1	Cairn - burial cairn	1	MA046-004001-
B1	Cairn - unclassified	1	DG037-013002-, DG045-034----, DG087-010----, MA030-054----, MA038-099001-, MA047-031----, SL014-076051-, SL019-174002-, SL021-007----, SL028-001----
B1	Castle - tower house	1	DG094-006----, MA110-004----
B1	Castle - unclassified	1	SL015-090001-
B1	Cave	1	SL014-288----, SL014-290----
B1	Church	1	DG094-002----, MA100-109001-, MA100-152002-, SL008-009----
B1	Cist	1	DG078-042----, MA046-004002-, MA046-004003-, MA046-004004-
B1	Clochan	1	DG085-004----
B1	Country house	1	MA100-154----
B1	Crannog	1	MA013-003----, MA046-007----, MA078-013----, MA100-089----, MA109-018----, MA109-019----, MA110-003----, SL020-169----, SL020-269----, SL025-007----
B1	Cremation pit	1	MA046-004013-
B1	Earthwork	1	MA030-053002-, MA100-152003-, SL014-075----, SL020-205----
B1	Enclosure	1	DG026-044----, DG077-011----, DG092-019----, LE002-031----, LE002-045----, LE007-068----, LE010-024----, MA007-016019-, MA031-003----, MA036-004----, MA037-005001-, MA047-038----, MA048-064----, MA060-032----, MA061-035001-, MA070-190----, MA100-087----, MA100-160001-, MA100-160002-, MA100-160003-, MA100-160004-, MA100-160005-, SL015-056----, SL015-057001-, SL015-125----, SL017-047----, SL019-201001-, SL031-016----, SL032-187----
B1	Field boundary	1	MA038-099002-, SL019-201002-
B1	Field system	1	SL031-017001-
B1	Fulacht fia	1	MA061-036001-, MA061-036002-, MA070-107----
B1	Graveyard	1	MA100-109002-, SL036-063----
B1	Hilltop enclosure	1	SL032-169----

B1	House - 16th/17th century	1	DG078-014----
B1	House - 18th/19th century	1	SL019-176002-
B1	House - early medieval	1	MA046-004009-, MA046-004010-, MA046-004014-, SL008-025001-
B1	House - indeterminate date	1	MA061-031003-, MA061-035002-
B1	House - Neolithic	1	MA007-016018-
B1	Hut site	1	DG026-013002-, DG085-002----, SL015-059004-, SL027-083----, SL032-176----
B1	Kiln	1	MA046-004011-
B1	Mass-rock	1	LE007-093----
B1	Megalithic structure	1	DG036-033----, DG077-025----, MA030-053001-, MA103-054----
B1	Megalithic tomb - court tomb	1	DG101-007----, MA006-027----, MA007-016006-, MA020-001----, MA021-044----, MA028-001----, SL008-011----, SL009-051----, SL015-050----
B1	Megalithic tomb - passage tomb	1	SL014-088----, SL019-177----, SL019-258----, SL020-128----, SL020-274----, SL020-275----
B1	Megalithic tomb - portal tomb	1	DG077-021----
B1	Megalithic tomb - unclassified	1	DG026-012----, DG069-030----
B1	Megalithic tomb - wedge tomb	1	DG077-024----, DG098-003----, MA031-005----, MA048-067----, SL009-048----, SL009-050----
B1	Moated site	1	SL037-047----
B1	Mound	1	DG037-013003-, DG052-023----, MA030-037----
B1	Penal Mass station	1	DG037-024----, DG052-033----
B1	Pit-burial	1	MA046-004005-, MA046-004006-
B1	Prehistoric site - lithic scatter	1	SL014-277----
B1	Promontory fort - inland	1	DG092-017----, SL015-090002-, SL021-001----
B1	Redundant record	1	DG044-010----, LE002-030----, LE010-026----, LE010-027----, MA021-090----, MA021-091----, MA021-092----, MA046-004012-, RO003-028----, SL005-184----, SL015-048----, SL021-108----, SL027-166----, SL032-168----, SL032-170----, SL032-173----, SL032-174----
B1	Ringfort - cashel	1	DG026-007----, DG026-008001-, DG026-013001-, DG026-016001-, DG027-026----, DG077-014----, DG078-039001-, DG101-008----, LE010-006----, LE010-025----, MA047-037----, MA061-034----, MA087-047001-, SL005-118001-, SL006-001----, SL015-059001-, SL020-206----, SL025-013----, SL025-042----, SL031-017----, SL032-038001-

B1	Ringfort - rath	1	DG097-035----, LE002-002----, LE003-029----, LE006-004----, LE010-004----, LE015-018----, LE015-079----, MA040-033----, MA046-004007-, MA069-008----, MA079-026----, SL008-013----, SL008-025----, SL008-064----, SL014-084----, SL014-085----, SL021-172----, SL021-081----, SL025-021----, SL027-008----, SL027-009----, SL027-059----, SL027-113----, SL027-146----, SL027-147----, SL031-018002-, SL032-175----, SL034-017----, SL034-018----, SL034-037----, SL034-038----, SL034-039----, SL037-002001-
B1	Ringfort - unclassified	1	DG026-014----, DG075-001----, DG078-037----, LE007-006----, LE010-028----, SL008-005----, SL008-010----, SL009-022----, SL010-057002-
B1	Ritual site - holy well	1	DG052-003----, DG052-014----, MA046-002001-, MA046-002002-, MA073-003----
B1	Ritual site - holy/saint's stone	1	DG101-010----, DG101-011----
B1	Road - road/trackway	1	DG101-003----, MA036-003----, MA072-099----, SL045-002----
B1	Rock art	1	DG018-032----, DG062-019----
B1	Settlement cluster	1	DG085-006003-
B1	Souterrain	1	DG078-039----, MA046-004008-, MA061-031002-, MA087-047002-, SL005-118002-, SL015-059002-, SL031-038002-, SL037-002002-
B1	Standing stone	1	DG039-001----, DG045-013----, DG052-032----, DG062-018----, DG076-002----, DG077-027----, DG077-028----, DG087-001----, DG092-007----, MA021-095----, SL014-275----, SL014-293----
B1	Stone circle	1	DG037-013001-
B1	Stone row	1	MA020-002----, SL020-170----
B1	Structure	1	DG026-008002-, DG026-008003-, DG026-016002-, MA061-037-
B1	Sweathouse	1	SL035-123----

\* The SMRS numbers listed in the above table can be used to view and search for these monuments using The National Monuments Service Mapviewer available at [www.archaeology.ie](http://www.archaeology.ie). When the number of monument types exceeds 10 only the first 10 SMRS numbers are listed.

## Appendix II - Habitats and Species in Northwest BAU

### Special habitats in Northwest BAU Protected or rare species in Northwest BAU

Main Properties	Area (ha)	Habitat Quality	Management Strategy	Issues to be Addressed
<b>Upland, Blanket Bog PB2</b>				
Croaghonagh Bog Lower	33.8	Excellent valley bog	LIFE demo site restore bog	Block draining. Monitor water levels and vegetation
Carrick Barr	22.2	LIFE Site	Restore bog	Fell to waste, ring barking, block drains, monitor.
<b>Sand Dunes</b>				
Murvagh	204	Large area of dunes and coastal sand. Mature Corsican Pine Woodland Area contains 50.6 ha of salt marsh	Monitor and maintain Pine Monitor	Control Grazing Continuous cover strategy for CP
<b>Blanket Bog (PB2)</b>				
Doon	520.8	Extensive area	Maintain heath	To control grazing
Derry	196.6	Conifers plantation removed and bog allowed to regenerate. Drain blocking completed under EU funded Life project	Monitor for natural regeneration of Lodgepole pine conifers and trespass	Ongoing monitoring and associated cost of protection.
Sessuecommon	51.1	Maintain health	To control grazing.	Ongoing monitoring
<b>Dry siliceous heath (HH1)</b>				
<b>Slishwood</b>				
Slishwood	24.8	Moderate quality	Follow SAC Guidelines	Control non native invasive tree/shrub species
<b>Dystrophic lakes (FL1)</b>				
Sessuecommon	4.1	Rare Species	Follow SAC Guidelines	Protect lakes
<b>Wet Heath (HH3)</b>				

Doonee	24.5	Good flora/rare species	Follow SAC Guidelines	Control non native invasive tree/shrub species and deer
Knocknarea	13.8	Rare flora	Follow SAC Guidelines	Control grazing
Sessuecommon	15	Rare Species	Follow SAC Guidelines	To control grazing.
<b>Acid oligotrophic lakes (FL2)</b>				
Glencar	17.1	Diverse Flora/Fauna	Protect riparian habitat	Maintain zone of carr woodland
Ballygawley	31.0	Rare flora	Maintain lake habitat	Maintain oligotrophic standing water habitat
<b>Depositing lowland rivers (FW2)</b>				
Cullentra	1.4	Diverse flora	Restore Native woodland	Maintain Riparian habitat
<b>Exposed calcareous rock (ER2)</b>				
Crumpaun	2.7	Excellent Flora	Follow SAC Guidelines	Restore Riparian habitat
Glencar	1.3	Excellent Flora	Follow SAC Guidelines	Restore Riparian habitat
<b>Dry humid acid grassland (GS3)</b>				
Crumpaun	2.0	Grassland habitats	Follow SAC Guidelines	Maintain semi-natural grassland habitat
Gleniff	28.6	Extensive area	Maintain grassland	Control non native invasive species
<b>Eroding upland rivers (FW1)</b>				
Sheskin	2282.4	Owenmore catchment. Numerous small rivers flow through it.	Create riparian habitat of higher conservation value. Allow development of open bog and deciduous scrub habitats.	The survival of broadleaved species in such areas is often poor. Grazing of sheep may also be a problem.

**Native and Mixed Woodlands in BAU**

Main Properties	Area	Habitat Quality	Management Strategies	Issues to be addressed
Ards	25.0	Good flora/rare species	Restore N/W	Control Rhododendron
Greenan/Friary	11.0	Rare flora/species	Restore N/W	
Derryleck	6.6	Good quality	Restore N/W	
Clonkilly	14.4	Good habitat	Restore N/W	Control Trespass
Woodquarter	10.0	Good habitat	Restore N/W	Control invasive species
<b>Oak – Birch – Holly woodland (WN1)</b>				
Cullentra	17.6	Good flora/rare species	Restore native woodland (NW)	Monitoring of deer fence
Slish wood	18.6	“ “ “	Restore NW	Retain Scots pine
Hazelwood	11.1	Rare fauna/flora	Restore NW	Control Nat. Regeneration of beech
Brackloon	73.77	This is an important area of old native oak woodland, which has been well-studied recently.	Improve the quality of the oak-birch-holly woodland habitat.	The costs of ongoing restoration and public access
Laughil	45.48	This is an important area of old oak woodland which is included in a Forest Service funded Native Woodland Scheme.	Area re-established as of oak-birch-holly woodland habitat.	Goat trespass and control of natural regeneration of exotics needs attention in to the future. Damaged by fire in 2010.
<b>Wet Oak – Ash – Hazel woodland (WN4)</b>				
Hazelwood	28.5	Extensive Area	Restore NW	Control invasive species
Derrinrush	25.13	This is an old woodland site which supports one of the best examples of the habitat in the BAU.	Increase the quality and area of the habitat over time.	Deer are present and may be a threat to young deciduous woodland.

<b>Mixed broadleaves woodland (WD1)</b>				
Glencar	11.2	Excellent Flora	Maintain mixed woodland	Increase native woodland
Hazelwood	47.6	Rare flora and fauna	Maintain mixed woodland	Control laurel/ Rhododendron
<b>Mixed broadleaves/conifer woodland (WD2)</b>				
Slishwood	21.2	Good flora	Restore NW	Retain Scots Pine
<b>Mixed Conifer woodland (WD3)</b>				
Slishwood	25.2	Good flora	Increase NW	Retain Scots Pine

### Protected or rare species in Northwest BAU

<b>Catchments</b>	<b>Habitat quality</b>	<b>Management strategy</b>	<b>Management 2016-2020</b>	<b>Issues to be addressed</b>
<b>Freshwater pearl mussel</b> ( <i>Margaritifera margaritifera</i> ) Regarded by International Union for the Conservation of Nature and Natural Resources (IUCN) as 'facing an extremely high risk of extinction in the wild in the immediate future'. Also listed in EU Habitats Directive, Annex II.				
Clady Eske Leannan Owencarrow Owenea Newport Bundorragha	All properties falling within these catchments will be managed to the "Forestry and Freshwater Pearl Mussel Requirements"	Prevent enrichment of river waters by improving the ecological quality of riparian habitats.	Remove conifers and establish riparian scrub over time with the agreement of various regulatory bodies.	Agreement of National Parks and Wildlife Service and fisheries board. The cost of riparian restoration.
<b>Lesser horseshoe bat</b> ( <i>Rhinolophus hipposidero</i> ) Regarded by International Union for the Conservation of Nature and Natural Resources (IUCN) as 'facing a high risk of extinction in the wild in the medium-term future'. Also listed in EU Habitats Directive, Annex II.				
Moore hall, Towerhill	Supports the largest colony of the species in the BAU- both buildings and woodland are important.	Protect roosts and maintain suitable foraging habitat for the species.	No tree felling should be take place within a 20 metre radius of the roost. Low impact silvicultural methods such as continuous cover forestry be practiced 20 and 100 metres of the roost.	Costs of building and maintaining roosts.

<b>Atlantic salmon</b> Listed in EU Habitats Directive, Annex II				
<b>Sword-leaved helleborine</b> Listed in EU Habitats Directive, Annex II				
Brackloon	A population of this very rare and protected orchid species has been recorded from this site. Probably the only site in the BAU.	Maintain and increase (if possible) the population of the species.	Survey the current distribution and population size of the species. Manage the woodland habitat in the immediate vicinity of the species in order to	
<b>Marsh fern</b> Listed in EU Habitats Directive, Annex II				
Creagh	This wetland fern species is considered to be rare and declining due to drainage of its habitat.	Maintain and increase (if possible) the population of the species.	Survey the current distribution and population size of the species. Ensure that no habitat disturbance, i.e. drainage, occurs in the vicinity of the population(s).	

## Species

In terms of species, notable species identified in the BAUs forests are listed below

Notable Species	Notable Species	Notable Mammals
The Globe Flower Irish Ladys Tresses Yellow Birds nest Round leaved Wintergreen Less Tway Blade Narrow Buckler-Fern Lemon scented Fern Broadleaved Helleboreine Birds nest Orchid Purple Saxifrage Mossy Saxifrage Alpine Meadow grass Holly Fern Intermediate Winter-Green Alpine Saw-wort Fringed Sandwood Shade Horse Tail Lesser Butterfly Orchid Gold Cone, Golden Lady BearBerry Slender Cottongrass St. Patricks Cabbage Marsh fen Common Toothwort	Lemon Scented Fern Broadleaved Helleboreine Moss Campion Alpine Bistort Alpine Saxifrage Tea-leaved Willow Northern Rock Cress Chickweed Willow herb Small White orchid Hoary Whitlow grass Yellow Mountain saxifrage Greater Spearwort Calcareous Fens Small Cranberry Bog Ceranberry Bog sedge Narrow leaved Helleborine Slim Sedge Pinewort Buckthorn Brown Beak rush Lesser Twayblade St. Dabeocs Heath	Badger (Meles meles) Merlin Peregrine Falcon Hen Harrier Golden Plover Red Grouse Red-throated Diver Ring Ouzel Golden Eagle Pine Marten (Martes martes) Badger (Meles meles), Red Squirrel Red Grouse Chough Merlin Peregrine Falcon Lesser Horseshoe Bat (Rhinolophus hipposideros)

### Appendix III – Recreation Facilities in the BAU

Location	Description
Ards Forest Park Donegal	Walking trails, Nature trails, looped walks, picnic area, café during summer months
Drumboe Woods Donegal	Walking trails, Nature trails, looped walks, picnic area.
Bonnyglen Wood Donegal	Walking trails, picnic area, viewing points
Murvagh Donegal	Picnic, Coastal walk
Drummonaghan Wood, Donegal	Walking Trails, viewing points, way-marked trails, picnic site
Woodquarter Donegal	Picnic Site, Boat launch, walking trails, way-marked trails, viewing points, fishing platforms
Ballykeeran Donegal	Walking trails, viewing points
Hazelwood Co. Sligo	Picnic Site, Boat launch, Walking Trails, Viewing Points, EU Life Project Demonstration Site with outstanding views of Lough Gill
Dooney Rock Co. Sligo	Walking trails, Viewing points, looped walks, picnic area.
Sliswood Co. Sligo	Walking trails, Viewing points, looped walks, picnic area.
Deerpark Co. Sligo	Walking trails, Viewing points, Way-marked ways, Historic buildings
Carns Co. Sligo	Problems with dumping so car park had to be closed. The trails on this site were upgraded in 2014. Two loop walks were upgraded with trail head signage at both. This property is walking distance from Sligo town and newly developed sports complex at Cleveragh.
Gortarowey Co. Sligo	Newly developed car park and trails including one to multi access standard. Work ongoing on providing two more looped walks in conjunction with Sligo Co Co with cross border funding for same.
Rathcarrick/ Knocknarea Co. Sligo	Newly developed walk from Strandhill village to the top of Knocknarea. Some of the most spectacular scenery is on Coillte property.
Drumharriff Co. Donegal	Looped walking trail.
Union Wood Co. Sligo	Walking trails, mountain bike course, viewing area on Union rock, picnic area and car parking.
Lissadell Co. Sligo	Walking trail, beach, bird watching, picnic area.
Milltown Wood, Co. Leitrim	There are a significant number of looped trails through these woods.

## Appendix IV – Monitoring

<b>Economic Parameters</b>		
<b>No.</b>	<b>Parameter</b>	<b>Measure</b>
<b>Establishment</b>		
1	Afforestation	area established (hectares)
2	Afforestation - Farm Partnerships	area established (hectares)
3	Restocking	area restocked (hectares)
4	Establishment Area Aerially Fertilised	hectares
5	Later Manuring Area Aerially Fertilised	hectares
6	Total kg/ha aerial fertiliser	
<b>Harvesting</b>		
7	Clearfelled area	hectares
8	Clearfell areas greater than 20ha in Upland areas.	no. of Sales Proposals
9	Clearfell areas greater than 5ha in Lowland areas.	no. of Sales Proposals
10	Thinning area	harvest area ( hectares)
<b>Silvicultural Systems</b>		
11	Alternative to Clearfell sites	number of LISS sites
12	Alternative to Clearfell area	area of LISS sites (hectares)
<b>Forest Design</b>		
13	Forest Design Plans required	area of BAU where plan needed (hectares)
14	Forest Design Plans developed:	number of plans
15	Forest Design Plans: blocks restructured	number
<b>Species Composition</b>		
16	Primary species	% area of BAU
17	Secondary species	% area of BAU
18	Broadleaves	% area of BAU
19	Open Space	% area of BAU
<b>Chemicals</b>		
20	Chemical usage	Kgs active ingredient/ha
<b>Land Transactions</b>		
21	Area sold by BAU	hectares
22	Area acquired by BAU	hectares
<b>Environmental Parameters</b>		
<b>No.</b>	<b>Parameter</b>	<b>Measure</b>
<b>Biodiversity</b>		
23	Biodiversity area identified	% area of BAU
24	Biodiversity sites identified	number
25	Biodiversity management plans completed	number
26	Biodiversity features recorded	number
27	Long term retentions,	% area of BAU
28	Deadwood: Standing.	stems/ha in BAU

29	Deadwood: Fallen	stems/ha in BAU
30	Deadwood: Volume	total (m <sup>3</sup> ) in BAU
<b>Water Monitoring</b>		
31	Site Preparation,	no. of operations monitored
32	Aerial Fertilisation - Establishment	no. of operations monitored
33	Manual & mechanical fertilisation - Establishment,	no. of operations monitored
34	Aerial Fertilisation - later manuring	no. of operations monitored
35	Manual & mechanical- later manuring,	no. of operations monitored
36	Harvesting	no. of operations monitored
37	Roading	no. of operations monitored
<b>Forest Health</b>		
38	BAU Forest Health Survey results	any damage recorded [y/n]
39	BAU Forest Health Survey:	any action required to be taken [y/n]
<b>Abiotic Damage</b>		
40	Fires – stocked area damaged	hectares
41	Fire break production	meters
42	Windthrow area	hectares
<b>Deer Culls</b>		
43	Current deer cull return figures	number culled
<b>Social Parameters</b>		
<b>No.</b>	<b>Parameter</b>	<b>Measure</b>
<b>Cultural Heritage</b>		
44	Protected archaeological monuments identified	number
45	Local features/folk heritage recorded on GIS	number
<b>Recreation</b>		
46	Paintball	number licences issued
47	Car rallying	number licences issued
48	Pony trekking	number licences issued
49	Orienteering	number licences issued
50	Community walks/projects	number licences issued
51	Fishing	Number licences issued
52	Hunting	number licences issued
53	Other	number licences issued
54	Visitors to forest parks in BAU	Number estimated
<b>Complaints</b>		
55	Complaints received	number registered
56	Complaints addressed	number signed off
<b>Community</b>		
57	Community partnerships	number
<b>Health and Safety</b>		
58	Notifiable accidents	number

## Appendix V – Forest Details

Forest	Forest Gross Area (ha)	Clearfell Volume m <sup>3</sup>					Thinning Volume m <sup>3</sup>					Clearfell Area (ha)				
		2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
DL01 - Errigal	1,271	5,411	6,216	-	326	3,576	-	-	-	-	-	16	14	-	1	
DL02 - Ards Forest Park	531	-	-	-	-	-	927	-	-	-	-	-	-	-	-	
DL03 - Kilmacrennan	1,142	3,606	3,356	1,931	2,535	864	1,272	-	448	2,891	2	15	8	4	5	
DL04 - Ramelton	819	1,291	7,863	7,772	2,783	1,346	2,707	1,351	1,065	1,639	2,261	4	14	19	6	
DL05 - Rathmullan	716	-	-	506	615	1,629	-	258	490	809	1,030	-	-	1	1	
DL06 - Swilly	1,460	-	1,483	2,680	9,374	2,017	-	268	145	1,916	209	-	4	5	18	
DL07 - Swilly	1,397	4,123	8,453	1,332	8,393	9,065	2,795	212	1,718	451	2,081	14	17	2	19	
DL08 - Lagan	437	-	-	-	-	33	-	-	-	1,488	3,438	-	-	-	-	
DL09 - Convoy	1,215	5,273	-	8,016	7,089	5,266	1,818	783	1,055	3,173	1,596	16	-	25	16	
DL10 - New Mills	1,163	5,104	-	796	627	968	-	2,724	2,237	1,147	922	24	-	3	1	
DL11 - Gartan	662	2,739	-	7,886	3,128	291	-	1,393	550	158	787	12	-	15	7	
DL12 - Meeniroy	2,097	-	3,152	1,294	5,416	-	-	2,173	392	34	736	-	8	2	12	
DL13 - Lough Finn	716	4,163	-	-	-	-	-	-	-	67	-	13	-	-	-	
DL14 - Gweebarra	1,226	357	1,745	2,501	-	2,928	-	-	-	-	-	2	3	4	-	
DL15 - Glenties	1,601	2,925	9,970	3,873	2,779	3,224	-	-	-	-	-	11	22	7	3	
DL16 - The Glens	1,508	12,248	1,169	3,041	6,766	3,069	-	1,162	421	1,143	737	37	2	5	11	
DL17 - Reelan	1,450	12,069	4,310	6,851	2,687	2,179	3,045	1,724	2,296	-	1,436	28	12	17	5	

DL18 - Cark	1,498	2,152	2,676	3,088	1,776	2,648	-	38	493	1,714	404	12	6	6	4
DL19 - Drumboe	1,141	8,659	2,406	9,276	9,601	4,908	-	1,442	2,570	2,095	3,286	25	6	24	22
DL20 - Killygordon	1,938	5,065	20,001	10,564	7,266	21,959	5,272	2,871	1,329	3,327	3,659	24	42	19	14
DL21 - Ballybofey	1,428	4,122	1,782	4,437	5,930	6,156	-	2,214	1,489	967	1,171	17	5	10	13
DL22 - Meencargagh	1,553	17,590	8,067	4,615	4,438	10,223	1,927	1,435	619	3,800	143	67	19	10	15
DL23 - Croaghakern	627	-	2,453	-	1,911	-	-	-	-	-	-	-	4	-	4
DL24 - Lough Eske	2,096	3,603	5,548	16,829	4,384	29,550	2,360	863	685	504	1,225	13	12	35	12
DL25 - Brenter	1,851	-	7,838	5,208	395	5,282	-	-	-	-	-	-	14	10	1
DL26 - Killybegs	1,135	8,065	4,783	758	-	6,569	-	-	-	-	-	22	9	2	-
DL27 - Fintragh	1,119	2,509	-	-	4,303	1,490	-	-	-	-	-	14	-	-	8
DL28 - Laghey	373	-	-	1,013	-	747	-	599	529	479	62	-	-	2	-
DL29 - Cryoaghonagh	1,861	-	1,642	999	984	767	-	879	822	-	-	-	5	2	1
DL30 - Grousehall	1,241	4,289	2,695	5,188	25,794	4,888	1,253	856	647	881	440	11	7	10	58
DL31 - Lough Derg	2,882	23,377	20,201	22,067	10,828	5,139	2,036	1,869	5,447	1,622	2,802	91	49	36	19
DL32 - Meensheefin	979	2,741	5,661	2,460	4,009	8,259	-	47	1,370	28	896	5	17	5	9
DL33 - Ballintragh	487	1,888	5,057	-	-	3,690	1,388	127	295	120	570	4	11	-	-
DL34 - Murvagh	232	-	1,911	-	-	1,716	-	-	260	-	-	-	4	-	-
DL35 - Ballyshannon	894	4,110	2,728	6,758	-	2,481	-	764	1,058	499	228	17	5	15	-
DL36 - Pettigo	65	-	-	-	6,776	-	-	-	-	-	638	-	-	-	17
LM01 - Glenade	138	2,480	2,498	4,374	1,232	1,646	-	-	-	34	-	6	3	8	2

LM02 - Lough Melvin	501	-	-	-	5,252	49	-	1,306	943	1,594	811	-	-	-	12
LM04 - Bonet	1,096	11,606	933	5,002	2,440	10,940	-	754	1,376	1,999	753	35	1	14	5
LM05 - Glencar	348	5,876	9,362	5,364	640	5,688	-	664	266	499	-	16	16	11	2
MO01 - Glenamoy	1,816	3,819	5,933	2,129	-	3,934	-	-	-	-	-	19	13	4	-
MO02 - Ballycastle	3,218	-	4,552	-	-	2,315	-	-	-	-	-	-	11	-	-
MO03 - Carrowmorelacken	298	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MO04 - Knockaunderry	67	-	3,373	-	-	-	-	-	-	-	1,440	-	8	-	-
MO05 - Shannetra	3,140	5,670	-	30	1,077	8,720	-	2,552	689	673	2,365	26	-	-	3
MO06 - Sheskin	4,520	10,674	3,979	626	13,498	13,798	-	-	-	-	-	55	8	1	25
MO07 - Erris	1,492	10,432	-	-	-	12,817	-	-	-	-	-	38	-	-	-
MO08 - Nephin	4,426	3,398	-	-	-	-	13,919	-	-	-	417	11	-	-	-
MO09 - Tristia	1,442	7,775	1,361	1,196	-	2,604	-	140	393	889	249	45	3	2	-
MO10 - Conn	781	7,644	329	1,913	5,672	3,440	-	544	53	23	407	18	1	5	10
MO11 - Bunnaflaglas	808	4,947	12,584	6,040	6,570	2,750	-	486	-	146	665	18	24	12	12
MO12 - Swinford	593	1,276	-	5,107	-	1,839	-	700	401	406	645	6	-	23	-
MO13 - Charlestown	503	849	-	232	-	373	1,067	1,598	910	2,633	1,223	6	-	1	-
MO14 - Cloonakilliana	190	-	-	-	2,019	-	-	484	484	173	52	-	-	-	7
MO15 - Kilkelly	260	1,872	-	-	-	-	-	884	820	-	172	7	-	-	-
MO16 - Kiltimagh	856	5,987	2,856	67	3,726	1,859	2,292	3,812	1,350	2,811	2,020	28	11	-	7
MO17 - Turlough	613	-	-	4,060	5,220	3,375	536	1,010	914	526	466	-	-	7	10

MO18 - Glenisland	2,912	18,894	2,003	3,459	3,193	12,243	3,561	5,201	3,485	2,740	2,322	55	6	8	5	34
MO19 - Cloondaff	1,525	-	6,804	182	5,580	3,217	-	926	722	1,657	1,592	-	16	-	17	18
MO20 - Glennamong	724	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MO21 - Mulrany	2,443	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MO22 - Achill		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MO23 - Ballyglass	302	569	803	-	-	1,645	-	738	447	899	496	3	2	-	-	11
MO24 - Teevenish	604	8,287	1,001	-	511	-	-	157	247	477	17	24	2	-	1	
MO25 - Moorehall	316	5,803	2,959	6,528	-	-	-	-	-	284	-	16	8	14	-	
MO26 - Claremorris	651	3,833	6,817	2,831	3,215	4,924	-	-	-	853	1,199	10	17	4	7	10
MO27 - Ballyhaunis	190	1,157	-	-	-	-	-	618	1,861	-	26	8	-	-	-	
MO28 - Cloghans	122	-	1,859	673	-	-	-	47	395	-	82	-	4	2	-	
MO29 - Tourmakeady	439	-	6,681	-	-	-	-	389	-	389	-	-	10	-	-	
MO30 - Claddy	562	1,644	-	-	-	-	-	-	-	-	-	9	-	-	-	
MO31 - Brackloon	117	-	2,517	-	-	1,124	-	24	-	-	-	-	17	-	-	7
MO32 - Croagh Patrick	826	-	1,006	-	-	-	-	-	-	234	-	-	2	-	-	
MO33 - Barnaderg	824	8,652	927	-	-	4,955	-	-	-	-	360	35	3	-	-	12
MO34 - Doolough	1,292	17,572	5,617	-	-	374	-	-	-	842	-	76	15	-	-	1
MO35 - Kilmovee	439	4,505	-	7,683	5,402	7,175	2,097	2,441	1,146	1,588	658	21	-	32	17	14
SO01 - Benbulbin	1,138	13,818	7,433	13,423	3,682	17,946	749	177	345	487	784	40	16	23	6	27
SO02 - Lough Gill	668	7,650	6,823	7,631	2,769	18	-	630	48	-	168	17	15	14	5	

SO03 - Union	1,299	4,809	5,715	5,115	10,736	6,478	464	724	441	406	259	13	14	12	24	11
SO04 - Ox Mountain	3,274	13,182	28,651	18,929	12,272	19,523	-	294	1,588	1,466	851	33	64	38	22	41
SO05 - Easky	1,072	2,699	6,406	5,090	3,181	3,039	-	191	1,702	843	-	12	15	9	6	14
SO06 - Moy	3,161	5,274	4,513	3,528	7,619	5,826	1,051	1,108	2,247	3,637	3,340	18	10	9	28	18
SO07 - Tubbercurry	384	1,448	-	8,335	-	-	678	1,222	1,383	123	1,285	4	-	15	-	
SO08 - Ballisadare	745	5,781	5,632	7,050	2,188	-	328	855	181	400	1,848	16	20	11	8	
SO09 - Lavally	472	7,268	-	73	5,364	9,794	759	1,458	642	359	128	24	-	-	13	16
SO10 - Arigna	2,107	11,012	18,558	5,901	14,545	3,840	4,168	2,299	404	2,702	3,402	25	37	9	36	8
SO11 - Drumanone	402	-	-	5,317	6,933	1,047	445	778	67	409	737	-	-	9	13	7
SO12 - Curlews	1,550	3,134	6,149	5,901	6,135	5,137	3,315	1,993	1,526	3,213	1,735	11	12	13	10	14

Appendix VI – BAU Map

