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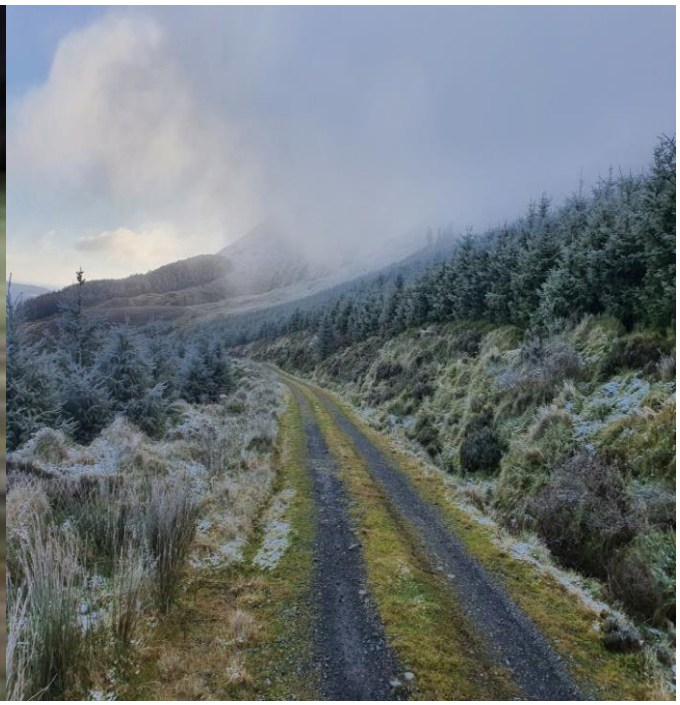

Central Munster Five Year Forest Plan 2021-2025

Foreword

I have great pleasure in publishing Coillte's Central Munster Year Forest Plan for our forests. The purpose is to set out plans for the forest and non-forest business that will take place in the BAU (Business Area Unit) during the plan period. In practicing sustainable forest management Coillte's aim is to develop its forests in a way that is environmentally, socially and economically sustainable. A key part of our business is sharing our plans with our neighbours, communities and stakeholders and endeavouring to incorporate their views where possible.

The topics covered in the Five Year Forest plans include:

Commercial Forest Planning:
- Tree Planting
- Timber Harvesting
- Timber Sales
- Forest Roads and Access
- Licenses and Lettings Recreation
- Land Acquisition and Property Sales
- Non Forest Business such as Renewable Energy

Forest Planning for public benefits and public use:
- Community facilities and benefits
- Recreational and tourism infrastructure and partnerships
- Access to our forests
- Environmental enhancement measures such as biodiversity and nature conservation

Forest Planning for sustainable use of resources:
- Sustainable Forest Management
- Long Term Retention of Trees
- Low impact silvicultural [1]systems
- Water quality
- Forest design
- Use of chemicals

PJ Trait

BAU Manager

[1] 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.

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 from all of our operations and activities associated with our forestry, property sales and energy businesses.

Our objectives are to:

1. Implement an organisation-wide system for managing environmental issues. The Director of Stewardship, Risk and Advocacy has responsibility for managing the implementation of 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®[2] (FSC®) and the Programme for the Endorsement of Forest Certification (PEFC™).

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, to Coillte staff and stakeholders, contractors and their employees and the communities within which we operate.

PJ Trait

BAU Manager

[2] FSC licence code FSC- C005714

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1. Coillte and Five Year Forest Plans

1.1 Coillte

Coillte is Ireland's leading forestry company and largest supplier of timber in Ireland with operations in timber panel production, renewable energy and land management. Our core purpose is to manage our forests sustainably and enable a vibrant forestry sector in Ireland. As the largest landowner in Ireland we enable the development of renewable energy projects on our lands in order to address climate change.

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 and management of the Irish State's forests.

Coillte Today

The company is a forestry and forest products business, with interests in renewable energy. The company has three operating divisions - Coillte Forest, who manage all aspects of the forestry business, a Land Solutions business and Medite Smartply, a leading manufacturer of sustainable timber construction panels.

The company employs approximately 800 people across Ireland and the UK. Our business supports and enables a vibrant forestry sector in Ireland which is estimated to provide over 12,000 jobs, mostly in rural Ireland.

The Forest Service (Department of Agriculture, Food and the Marine) is the forest authority in Ireland and regulates the forest industry. 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.

Nature Conservation and Biodiversity

The Coillte estate consists of a varied tapestry of different habitats, ranging from conifer forests and mixed or broadleaved forests, to open bogs and heathlands, to lakes and rivers. Independent ecologists have identified the areas on our estate with the best value for biodiversity. These are then mapped and managed by Coillte as biodiversity areas. Currently, 90,000 hectares of our lands (about 20% of the estate), in more than 2,300 sites, are mapped as biodiversity areas where nature conservation and biodiversity enhancement are the primary management objective. We work with and respect nature across all of our forest lands, identifying, mapping and protecting important features of biodiversity. A list of important wildlife and their habitats and species in this BAU can be found in Appendix II of this Five Year Forest Plan.

Outdoor Recreation

Coillte operate an open forest policy and welcome all visitors to our lands according to the 'Leave no Trace' principals. As Ireland's leading provider of outdoor recreation we have more than 260 forest recreation sites for you to enjoy. For more information on how to get out and enjoy the outdoors and for details of all our recreation sites see http://www.coillte.ie/our-forests/explore/

1.2 Renewable Energy

Coillte is committed to the development of renewable 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 2030 target of achieving 70% of its electricity consumption from renewable sources. Coillte is fully aligned with

government and EU policy in terms of the role we play 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 Irelands 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 five year forest 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 2030 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 in renewable energy projects 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 for renewable energy projects

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 currently 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 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"*[3] to meeting Ireland's energy needs.

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 do not hesitate to contact us at info@coillte.ie

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 continues to play a key leadership role in delivering sustainable biomass energy solutions to the Irish biomass industry through its regional processing hub 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 processing hub now support 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.

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

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

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 Five Year Forest 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 to the public

As the largest provider of timber and timber products in Ireland Coillte enables a vibrant forest sector employing around 12,000 people, mostly in rural Ireland. In addition to these 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 operate an open forest policy and welcome over 18 million visitors to our lands each year. We provide over 260 forest recreation sites, twelve forest parks, six dedicated mountain bike trails and more than 3,000 km of walking trails on our lands. We are members of Leave No Trace Ireland and work closely with them to promote responsible use of the outdoors. Coillte also manage over 20% of our forest estate exclusively for nature conservation and biodiversity protection. Our forests are multi-use and commercial timber management and recreation are not exclusive of each other and can and do exist side by side on the Coillte Estate. Habitat restoration projects such as Coillte's EU funded LIFE Projects, and recreation partnerships like the Dublin Mountains Partnership are showcase projects that demonstrate best practice in natural resource management.

1.4.1 Trees, Carbon and Climate Change

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. Carbon dioxide is perhaps the main gas responsible for climate change and trees are key to the battle against it.

As they grow, trees remove carbon dioxide gas from the air. They convert this carbon into wood while at the same time releasing pure oxygen back into the atmosphere. This is incredibly valuable, ensuring forests, with thousands of trees are both an effective carbon store and carbon sink.

The quicker a forest grows, the more carbon it removes from the atmosphere. Conifers grow at a faster rate than other trees, which is why they are perfect for carbon sequestration. Our fastest growing conifers have an average growth rate of 18 cubic metres per year compared to an average of 4 cubic metres for slower growing broadleaf tree.

If managed appropriately, commercial forests can have an advantage over natural forests in terms of removing and storing carbon.

Maturing trees in a natural forest can lose as much carbon to the atmosphere through decay as they absorb through growth. A managed forest however will continue to absorb carbon over multiple generations, as trees are harvested at maturity and replaced with new young trees. This maintains a rapid rate of carbon sequestration.

The timber products made from forest wood also lock carbon away, which means that using timber

products for construction in place of more conventional materials such as bricks, concrete and steel also leads to further net reduction of carbon emissions.

In summary, well managed plantation forests have a triple benefit in combating climate change:

1) Tree absorb carbon from the atmosphere.

2) This carbon is then stored in timber products after harvesting.

3) Timber products can substitute carbon heavy products like concrete and steel.

And finally, trees are always replanted after harvesting to restart the cycle of absorption again.

Coillte consult with local communities in a number of ways, for example through planning consultation process, through direct liaison via annual BAU consultation meetings, through our online portal and directly through operational consultation. Coillte endeavour at all times to accommodate the requirements of stakeholders where possible.

1.4.2 Coillte Nature

Coillte Nature is the not-for-profit branch of Coillte that is dedicated to the restoration, regeneration and rehabilitation of nature across Ireland. Our mission is to deliver real impact on the climate and biodiversity crises through innovative projects-of-scale across four strategic themes:

- Reforesting our landscapes by planting new native woodlands on un-forested land
- Restoring important biodiversity areas by investing in major habitat improvements
- Regenerating urban forests for the benefit of people and nature
- Rehabilitating ecosystem services by bringing sensitive or degraded lands into better health

For more information, see **www.coillte.ie/coillte-nature/**

1.5 Meeting external challenges and constraints

Coillte and all of its forests, lands and operations 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 five year forest plans will each contribute to meeting these challenges and constraints.

1.5.1 Statutory and non-Statutory regulation and certification of forestry

	Response
National Forestry Programme 2014-2020 "To develop an internationally competitive and sustainable forest sector that provides a full range of economic, environmental and social benefits to society and which accords with the Forest Europe definition of sustainable forest management ."	In response to the National Forestry Programme: Coillte will set and meet targets for the national timber supply. Coillte will seek to increase the recreational value of some of its forests. Coillte will continue to manage 20% of all its forests exclusively for nature conservation and biodiversity

National Biodiversity Plan 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.	Coillte is making a meaningful contribution to the National Biodiversity Action Plan through the designation of 20% of its forest estate overall for nature conservation and biodiversity management. Coillte initiated a partnership with the National Biodiversity Data Centre based in Waterford which currently holds more than 85,000 records of different species of animals and plants from Coillte lands.
EC Habitats Directive and EC Birds Directive (92/43/EEC) as transposed into Irish law under the S.I. No. 477 of 2011 EUROPEAN COMMUNITIES (BIRDS AND NATURAL HABITATS) REGULATIONS 2011. 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.	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. All forest operations which potentially could impact on such sites are assessed under the criteria outlined as required by the Regulations.
Water Framework Directive (2000/60/EC) 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.	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. 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, the FSC and PEFC.

Sustainable Forest Management (SFM) 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. Compliance with forest certification standards is assessed annually by independent auditors.	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.

1.5.2 Pests and Diseases

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 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.

In addition, Coillte carry out forest health surveys of its estate and assist in the monitoring of nationally important forest pests such as Ips typographus, the eight-toothed bark beetle, where appropriate.

1.5.3 Societal Expectations

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.

- 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.

1.5.4 Illegal Dumping

Due to the vast and rural nature of the Coillte forest estate, illegal dumping has become a major issue for Coillte with sites close to urban centres being particularly prone to this criminal activity. Illegal dumping in our forests is not just an unpleasant eyesore, it is an environmental hazard and causes serious problems to habitats, species, and human health. It can pollute rivers and drinking water sources, damage biodiversity and is a threat to both the people who live in the area and

recreational users. In addition, it poses a health and safety risk to those staff and contractors who are tasked to remove this illegally dumped litter.

In order to deter illegal dumping Coillte install CCTV cameras and signage in illegal dumping hotspots and investigate all reports of dumping on our forest lands. When evidence is found at dumping sites, litter wardens issue fines and pursue prosecutions. Coillte also work closely with local authorities to seek prosecutions against those who are responsible for illegal dumping.

Coillte also participate in a number of community and local authority initiatives. Coillte would ask the pubic to be vigilant and report any suspected cases of illegal dumping to the authorities.

1.5.5 Forest Fires

Forest fires can have a number of serious impacts for Coillte. These include financial losses as well as having an impact on the wider forest industry by disrupting timber supplies from Coillte to the saw mills. There are significant re-establishment cost following a forest fire. There is also potential health and safety risk to emergency personnel, staff and contractors involved in fire control and to members of the public. In addition, environmental impacts include damage to recreation facilities and endangered species.

It is Coillte's policy to minimise areas damaged by fire with effective prevention and fire control measures. Forest fires can occur through the year but the risk is greatest during dry spells from March to June when ground vegetation is dormant and dry. Fire Plans are developed for all forest properties including a map showing access routes and assembly points for fire-fighting personnel, equipment and potential sources of water. As part of Coillte's health and safety programme all Coillte personnel and selected volunteers involved in fire-fighting duties must attend a one day Coillte fire training course. The one day course aims to equip everyone with the skills and knowledge required to carry out forest fighting duties in a safe and effective manner. On completion of training they will receive a certificate and a fire grab bag containing personal supplies relevant to firefighting. BAU Team Leaders have the authority to avail of helicopter services based on input from Operations Managers, and in consultation with National Estates Risk Manager, if necessary. Helicopters will be equipped with bambi buckets. A helicopter could be considered for a number of uses:

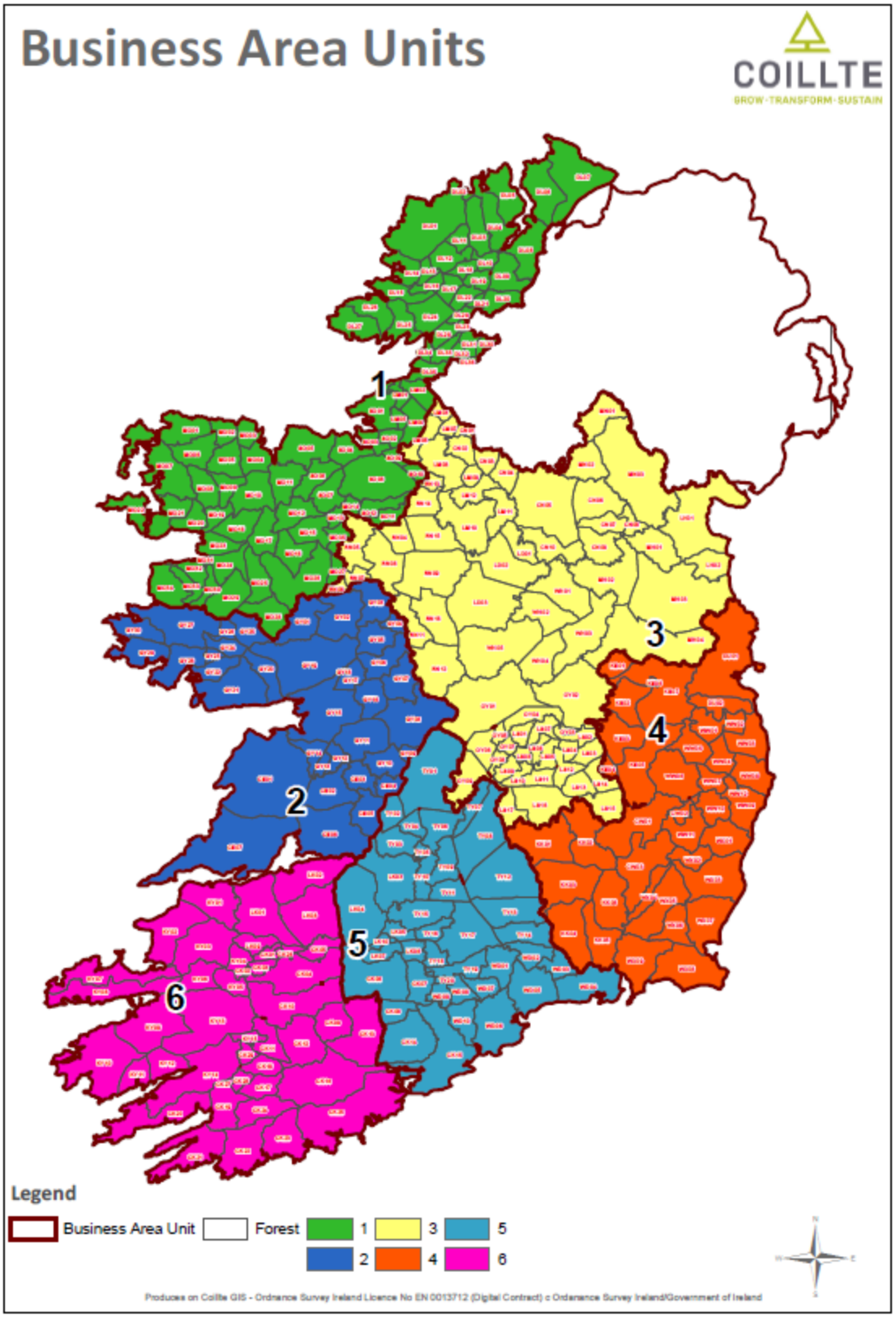
- Surveillance of fire
- Transportation of staff and equipment
- Fire fighting

Coillte would ask for vigilance from the public in relation to Forest fires and act if required by

1. Reporting directly to the emergency services any sightings of a fire
2. Reporting any suspicious activity in relation to fire or any knowledge of attempts to light a fire
3. Not lighting campfires or charcoal barbecue sets on Coillte property.

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 Five Year Forest 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 2016-2020. This plan refers to the incoming planning cycle 2021-2025.

Coillte also convenes annual consultation meetings* for each of its BAUs. Plans are discussed with stakeholders to help Coillte to understand social, recreational and environmental issues as well as opportunities and concerns in each BAU.

*Due to health crisis in 2020, BAU consultation meetings could not be held. This will be reviewed in 2021 in line with government health advice

1.7 Summary on the Various Levels of Coillte Forest Management Planning

The **BAU Five Year Forest 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.

An **Activity Pack** 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. Central Munster BAU

2.1 Central Munster BAU

All BAUs play important roles in achieving Coillte targets and objectives. The Central Munster BAU of Coillte Forest encompasses Counties Tipperary, Waterford, Cork (part), Limerick (part). It is a large BAU covering 917,796 hectares of Ireland. Within this area, Coillte owns 73,028 hectares (8%).

Main population centres in the area include Waterford, Dungarvan, Clonmel, Cahir, Cashel, Nenagh, Thurles and Roscrea. Other main towns within the environs are Fermoy, Midleton, Templemore, Borrisokane and Newport. Main mountain ranges and upland areas include Slievenamon, Comeraghs, Devils Bit, Knockmealdowns, Galtee, Ballyhouras and Slieve Ardaghs.

There is one Coillte owned Boardmill within the environs namely Medite in Clonmel, Co Tipperary.

The climate for forestry operations is suitable, with moderate rainfall and relatively good ground conditions, soil types are mainly gley, podsols, brown earths and peats.

2.2 Forests and Forest Products in the Central Munster BAU

A map of Coillte's Forests in the Central Munster BAU can be viewed in Appendix VI

During the 2016-2020 period, the BAU produced approximately 2 million cubic metres of wood. Timber produced within the BAU during the period 2016-2020 was primarily sold to Medite, Smart*Ply*, Murray's, Glennons, Woodfab, ECC, GP Wood, Coolrain and Laois Sawmills.

In addition Coillte's production supports both Coillte owned panel mills and other sawmills in the surrounding area such as Hollyford.

Forest Products

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 approx.. 180 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 Central Munster BAU

Coillte has a long history of working with and facilitating communities, clubs and individuals who use our extensive forest estate for recreation purposes. 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 respect the sustainable use of our forests for future generations. The recreational activities that take place in the multi-use forests of Central Munster BAU complement the landscape and terrain within its boundaries and contribute to the social and economic life of the area.

A number of recreational facilities are the result of joint initiatives between Coillte and local communities. Examples such as:

- Aherlow Nature Park - Aherlow Fáilte has a long term lease of the picnic area and Scot's Pine stand adjacent to the viewing area and well known beauty spot at Christ the King Statue overlooking the Glen of Aherlow. Coillte facilitates a wide network of walking trails on Slievenamuc hill. There are trails on the southern side of the Galtys also, mostly accessing the mountains and lakes.
- Mountain Meitheal South East – is a voluntary trail building group who have worked enthusiastically on a number of trails around the Galtys to facilitate access for walkers to the

mountains and lakes. These trails are all constructed to a high standard using manual labour with guidance and materials from Coillte.

- Ballyhoura Mountain Bike / Trail Centre - Located close to Ardpatrick village in Co. Limerick, this is the hub of the recreation network at Ballyhoura and is one which five mountain bike centres on the Coillte estate that attract large numbers of bikers to the rural countryside. Facilities include - car parks, toilet and shower facilities, bike wash, mountain bike trails, numerous way-marked walking trails and picnic facilities and a Trim Trail. The mountain bike trails range from the moderate 6 kilometre Greenwood loop to the demanding Castlepook loop, over 50 kilometres in length. There are a number of National Looped Walks and a National Way-marked Way (NWMW) passing through this forest. This mountain biking trailhead and trails were funded by Fáilte Ireland and support from both Cork and Limerick County Councils with additional trails being funded by LEADER and Castlepook Windfarms. Ballyhoura Development Group have ongoing involvement in this initiative from its conception.
- Glengarra wood is located close to Cahir in Co. Tipperary. It is a Millennium woodland and has a number of woodland walks along with some wonderful specimen trees and Yew Woodland. In more recent years Burncourt Community Council has been doing Trojan work in renovating the Mountain Lodge, a listed building within the Wood. Coillte facilities this work where possible.
- Knockanacree and Scohaboy Bog, Cloughjordan, Co. Tipperary. Coillte has an ongoing association with Cloughjordan Community Development Committee who have done great work in developing trails entailing Coillte properties in the area. The community has been a long supporter of the LIFE Projects in the area, most notably the LIFE-Nature conservation project – LIFE09 NAT/IE/000222.
- Colligan - A woodland and riverside amenity area with a car park, National Looped Walks and picnic area This project was developed in partnership with Waterford County Council.
- Scaragh Woods which is on the outskirts of Cahir in Co. Tipperary has a network of trails that was developed by Cahir Historical Society that caters for a range of walkers.
- The development and enhancement work to the walks and trails in the BAU such as Marl Bog, Bishops Wood, Carey's Castle, Glenbawn (Marlfield), in County Tipperary.
- Crough Wood – a riverside woodland walk at mahon Bridge, Kilmacthomas, Co. Waterford. This community project with inputs from Waterford Co. Co. is very popular in its own right but also as an access point to the Comeragh mountains.
- Kildanogue Duck Ponds in the Knoclmealdowns cared for by ABGN Gun Club is a conservation project with a strong education element that is enjoyed by individuals and families alike. The project is facilitated on Coillte land.

There are also a number of Waymarked Ways passing through Coillte property in the BAU. Amongst others, these include the East Munster Way and Slieve Felim Way along with more recent multi-days walks the Ormonde Way and St. Declan's Way.

Coillte continues to facilitate looped trails across the BAU where there are committed community groups and Clubs. Examples include walks in Grange Crag in mid Tipperary, Kilbarry wood close to Fermoy, multiple walks in the Knockmealdown mountains that are tended by Knockmealdowns Active, many walks in the vicinity of the Ballyhouras that are developed by Ballyhoura Heritage and Environment.

Many of the Coillte forests in this BAU are expansive and offer multiple activities such as walking, biking, pony trekking, picnicking, wildlife watching, canoeing, field archaeology or simple enjoyment of the outdoors. The estate is multi-use and dynamic with forest operations occurring and taking due cognisant of third party activities and vice versa.

This BAU has designated areas for recreational activity, and these are detailed on the Coillte website http://www.coillte.ie/our-forests/attractions/. A table below describing the recreational values of the BAUs sites is available in Appendix III.

Coillte seeks to provide high quality, authentic and safe experiences for all our visitors. Further queries can be directed to recreation@coillte.ie.

2.4 Cultural and Archaeological Heritage in the Central Munster BAU

Coillte is aware of some 300 archaeological sites and sites of cultural significance in its landholdings in the Central Munster BAU. These monuments include megalithic tombs of different kinds, Cashel's, Fulcacht Fia's, Standing Stones, enclosures, cairns, Bronze Age Burial Mounds, Ring Forts, Holy Wells and crannogs. Monumental locations are recorded on Coillte's Geographically Information System. A summary of archaeological sites in the BAU is provided in Appendix I.

With support and advice from the NPWS, 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 19th and early 20th century. 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 and historical value and a plan implemented for their preservation. Examples include **–**

1. **Children's Graveyard TY06 Killeen Property** – Through engagement and consultation with local interested parties (amateur archaeological group in Templederry, Co. Tipperary), the Forest Service and Emmet Byrnes (Forest Service Ecologist), a management plan was agreed and implemented to protect and enhance this little known local feature. The plan was initiated as part of the 2011-2015 GFL application. Routes and methodology during harvesting operations were agreed and implemented to minimize damage and disturbance to the features in question. The removal of the large timber from this steep site and the subsequent protective measures (fencing) were implemented through the establishment process. This area is now protected and future proofed from any potential operational transgressions. The route/old track to the feature was also cleared for the purpose of future access.

2. **Sweathouses in Keeperhill forest TY03** (namely Doonane property and Middlequarter) are two examples where Coillte removed trees and created a buffer to the existing sweathouses. These features are now protected from potential operational transgressions going forward. Further minor track clearance and minor maintenance works – specifically access routes have been maintained through a collaborative approach locally under the Rural Social Scheme providing workers and arranged through Coillte Forest Recreation team.

3. Cultural Wall features have been protected in **TY01 Sopwell** Property through clearance of vegetation off the walls and minor drainage works. Allowing for the features to 'breathe' these maintenance and enhancement works were carried out during roadwork operations prior to harvesting.

4. **Gorteenshingaun TY07** – Fencing of Ringforts at establishment phase or during harvesting operations is a common procedure as part of normal maintenance and Forest operations. Gorteenshingaun ringfort is an example of a ringfort buffered by fencing for the purpose of protecting the feature. The area was fenced after a thinning operation cleared the ringfort buffer and the fence was erected subsequently to this operation. This area is now protectedand future proofed from any potential operational transgressions as is a standard procedure.

5. **Curreeny** – Gortahumma Ring Barrow Management plan was implemented further to engagement of an Archaeologist. The management plan involved the manual felling of trees on the ring barrow and the removal of the timber by processor through lifting off the feature. The feature was fenced within two years of the operation in 2013 and this feature is now protected from potential operational transgressions going forward.

6. There is an important hill fort site at **Corrin**, near Fermoy and examples of clusters in the Knocknagoun Mountain.

As the BAU has a large portfolio of Farm Partnerships the protection and buffering of archaeological features is generally in place. Notwithstanding this, Coillte, during subsequent operations in these areas are fully cognisant of the importance of protecting these features. Archaeologists are regularly engaged in an advisory capacity for the purpose of best practice and in line with Forest Service Guidelines as they relate to archaeological features on the estate.

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 its lands.

2.5 Biodiversity and High Conservation Value Forests (HCVF) within the Central Munster BAU

Habitats and features of biodiversity value on the Coillte estate are protected during forest operations.

The table below shows that approx. 13,753 ha of Coillte land in the Central Munster BAU is protected during operations or enhanced to increase its biodiversity value. This equates to approximately 19% of all Coillte land in the BAU.

Areas protected or managed for biodiversity are spread across the BAU area and vary widely, both in terms of their size and in terms of the habitat type present.

Broadly, there are three main types of site protected for biodiversity: Biodiversity Areas, Biodiversity Features and Riparian Buffers. Biodiversity Features and Riparian Buffers can occur anywhere on the estate, including within Biodiversity Areas, so there is some overlap between these three categories

Bio Ref	Description	Area (ha)
Biodiversity Areas	Habitats that have particular value for nature or biodiversity.	11,639
Biodiversity Features	Small features (usually <2ha) that add biodiversity value to the forest stand, protected during forest operations	823
Riparian Buffer Strips	Strips of land that adjoin streams, rivers and lakes, and are managed for their protection.	2,035

Biodiversity Areas

Biodiversity areas are essentially habitats of nature conservation value that occur on the Coillte estate. They vary widely in terms of the habitat type present and in terms of their ecological value.

Coillte began the process of identifying and mapping habitats of nature conservation value on the estate in 2000. During 2001-2005, freelance ecologists were commissioned to complete this work.

During 2014 and 2015, Coillte developed a procedure called BioClass, which is used for classifying biodiversity areas according to their habitat type and overall ecological value. The BioClass procedure is based on national research on biodiversity in Irish forests. Freelance ecologists were once again commissioned to review all biodiversity areas across the estate and apply the BioClass procedure. The benefits of BioClass are that the biodiversity information is summarised and provided to Coillte staff in a more accessible manner.

Approximately half of Coillte's biodiversity areas are forest habitats: native forests, broadleaves forests, mixed conifer-broadleaves and conifer forests.

And half are open habitats: mostly bogs and heaths, with some specialised habitats such as limestone

pavement and coastal habitats.

Some biodiversity areas have very high ecological value and are significant at national or international level, while others are of moderate value and are significant at a more local level.

Each year, the sites of highest biodiversity value are targeted for monitoring and management activities. These sites are identified on a rolling programme each year.

Biodiversity Features

Biodiversity features are small features that have value for biodiversity. They occur across the whole estate and are protected wherever they occur.

The types of biodiversity features that occur on Coillte sites include: small pockets of open habitat within the forest (usually heath, bog or small wetland); small stands of scrub (broadleaved scrub or open stands of poorly-grown conifers); locations of particular species of flora and fauna; veteran trees or deadwood.

Coillte staff and contractors continue to find, record and protect biodiversity features on operations sites.

Riparian Buffer Strips

Riparian buffer strips are portions of Coillte sites that run alongside watercourses (rivers, streams or lakes). In all forest operations, the standard width of buffer strips is 10-15m. This width may be increased on certain site types. The creation and management of riparian buffer strips is described in guidance documents produced by the Forest Service of the Department of Agriculture, Food and the Marine.

The purpose of buffer strips is to protect watercourses from any damage that may arise during forest operations. Conifer trees that were planted in riparian buffer strips in the long-distant past (when forestry policy was were very different to today) are removed and the strip is either left open to revegetate naturally. Sometimes, clumps of native broadleaves are manually planted in the buffer strip.

Over time, the buffer strips develop into open habitat or scrub alongside the watercourse or lake, and have considerable wildlife value. As with the biodiversity features, the area of riparian buffers increases over time, as more are mapped on operations sites and converted to open habitat and/or scrub.

HCVF

Coillte's certification process requires that we identify areas of high conservation value forests (HCVF) across the 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.

In Ireland, HCVF is defined as sites that have a statutory designation for nature conservation, either nationally under the Wildlife Act as Natural Heritage Areas (NHA) or under European Law (Habitats Directive) as Special Areas of Conservation (SAC) or Special Protection 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 Central Munster BAU. Areas shown are in hectares (Ha).

Designation	Area (ha on Coillte lands)
HCVF	11,265
NHA* – Natural Heritage Area	358
SAC* - Special Area of Conservation	1,647
SPA* – Special Protection Area	8,872
Nature Reserve	0
pNHA	1,830

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 assess 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 Central Munster BAU achievements in relation to nature conservation include the following:

- Approximately 7,522 hectares of Old Woodland sites in BAU and a number of these are being managed as OWS to retain their semi-natural characteristics;
- Native Woodlands site located at Bansha West (Slievenamuc Forest), Garryclogher (Cahir Forest) and Gralagh (Dungarvan Forest).
- 9 ha of Yew Woodland at Cahir Park restored under EU Life Project.
- Peoples Millennium Forest, Glengarra Wood. 20 ha planted with Native species.
- Habitats regulation assessments take place in relation to all works on designated sites.

There are a number of ways in which OWS sites can be managed:-

- Existing native woodland is being retained in some areas e.g. Monaduanna, Lismire, Dreenagh, Dromdeer.
- Conifer stands are being restored to native woodland where ecological reports recommend a good reason to do so e.g. Gurteen, Island wood, Cappagh.
- There are areas of broadleaf commercial production, Gurteen, Dromdeer, Glenabo.
- There are areas of commercial production of light-crowned conifers (pines, larches, Douglas fir), Greenwood, and Thomastown.
- There are areas of spruces, where sites are not suited to light-crowed conifers, Streamhill, Ballyknock

2.6 Species and Habitats in the Central Munster BAU

The predominant non-forest habitats within the BAU consist of heath, wet and dry, raised and blanket bog and freshwater habitats together with the open moorland on the Galtee/Galty and Knockmealdown mountains ranges and along Munster Blackwater. Some excellent examples of these semi-natural habitats are within Coillte ownership.

The BAU also contains other special habitats including excellent oak/birch/holly woodlands and mixed broadleaf woodlands. Notable animal species in the BAU include the Nightjar, Little Egret,

Pine Marten, Red Squirrel, Fresh Water Pearl Mussel, Hen Harrier, Otter, Wood Ants, Badger and Bats.

The BAU aims to maintain and where possible enhance the habitats of these species. Management plans have been drawn up for agreed biodiversity areas which will ensure that forest operations will not interfere with the habitat of these species where they exist on Coillte land. The Biodiversity Action Plans, produced by Coillte, for the hen harrier and the freshwater pearl mussel will continue to be drawn upon. Close communication will be maintained with the NPWS on all matters relating to all of the above species.

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 in the Central Munster BAU

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 which is a significant issue on our properties. Other invasive species found in the BAU include giant hogweed, laurel and Japanese knotweed. Work has been carried out to help eliminate these species.

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 Central Munster BAU

In terms of water, the BAU is dominated by the South East (SERBD) & West (SWRBD) River Basins and the Shannon (SRBD) International River Basin. The main rivers include Blackwater, Lee, Nore, Suir and Shannon. Lough Derg is also a dominant water feature. The rivers and lakes of the area support important salmon and trout fisheries and this is also important to the local economy. There are also associated freshwater pearl mussel populations.

Coillte abides by all Forest Service Guidelines, Regulations and Requirements in regard to protecting water quality, and in particular the Forest Service Guidelines on Water Quality, which detail sound and practical measures for handling forest operations in proximity to waterways. As the largest landowner in counties Waterford, Tipperary, Limerick and Cork Coillte has a responsibility to ensure that it's actions do not negatively impact on water quality. Within the BAU the following are the most significant issues relating to water:

- Water abstraction for domestic use.
- Presence of important salmonoid rivers, such as the Licky, Clodiagh and Munster Blackwater.
- Presence of the rare hardwater species fresh water pearl mussel species (Margaritifera Durrovensis) in the Nore River catchment.

When planning forest operations all the issues listed above are considered. During this process, Coillte will liaise with a wide range of environmental regulators, including the Forest Service, Inland Fisheries Ireland, Shannon and South Eastern River Basin Districts, NPWS and local authorities,

particularly with regard to the potential impact of forest operations in proximity to environmentally sensitive waterways.

Two of the catchments are designated SACs for the fresh water pearl mussel (Margaritifera margaritifera), namely Nore and Clodiagh.

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 provision of sediment traps is now standard practice where there is any risk of siltation occurring. A pollution control plan is in place and a pollution control kit is on site for all high impact operations.

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.

2.9 Forest Management Issues in the Central Munster BAU

Coillte's Central Munster BAU faces a number of issues in relation to managing its forests effectively for production and for their recreational and social benefits. Over the past 5 years these have included:

Security; Coillte has a security plan in place which the BAU implements to help minimize the risk of losses through theft, vandalism and crop damage.

Litter and waste dumping; Illegal dumping is unsightly and unnecessary, causing serious problems to habitats, species, and human health. It pollutes our water courses, damages soil nutrients, encroaches on habitat space, kills insects and animals, and is a threat to both the people who live in the area and recreational users. It also has a negative economic impact on tourism and discourages both tour companies and tourists in visiting certain areas. This is an ongoing issue both in rural areas and areas close to urban centres. The majority of it is domestic waste. Coillte works closely with local authorities and groups to help clean this up.

Illegal use by motorized vehicles, inappropriate recreation and anti-social behaviour; Coillte through the security plan utilize the most appropriate methods of security including the erection of cameras to help reduce the problem but also to bring about prosecutions.

Deer poaching; This can be problematic in certain areas and Coillte work closely with the NPWS and An Gardai Siochana to help minimize the extent of the problem.

Coillte implemented by-laws for access to and use of Coillte managed lands. Recreation sites where there are ongoing issues such as illegal access on motorized vehicles, dumping, anti-social behaviour etc. are prioritised 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 in the Central Munster BAU

Wild deer on Coillte's estate is managed 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 achieving viable deer populations across the Coillte 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

Wild deer are present on over 60% of the Coillte estate. Through browsing and bark-stripping trees, deer can have a considerable negative impact on any tree crop and 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 and can be a major health and safety hazard, particularly on public roads.

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 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 to ensure the effective management of the deer utilising their lands.

Coillte have demonstrated considerable commitment and leadership 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 the Hunter Competence Assessment programme and the Irish Deer Management Forum (a group which has been disbanded since the retirement of its Chairperson and which Coillte wish to re-instate). At Regional and local level Coillte are active participants in a number of deer management partnerships and groups.

The impacts to Coillte's crops are generally localised, predominately in areas with high deer density. A breakdown of deer species abundance has been gathered countrywide coupled with damage inflicted on crops. 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.

Deer management in Coillte is coordinated nationally through a new deer oversight group which was established in 2020. This group is comprised of staff from Estates, Operations, Public Relations and Recreation.

Coillte's summary deer management policy can be viewed here **Deer Management Policy**. As part of planned work for 2021, Coillte's Deer Oversight Group will review and update our current deer management policy and all supporting documentation.

3. The Central Munster 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.
- Provide renewable energy in forms such as providing fibre for Biomass

3.2 The Forest Resource and the Timber Business

Coillte realises its timber sales through planting and felling on its own estates and through the management of external partnerships.

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).

Central Munster

The silvicultural systems used across the BAU include clearfelling, continuous cover forestry, conversion to broadleaf, long term retention and small coupe felling. The management objective will either be timber production or biodiversity. Management decisions are site specific and generally based on stability, soil type, species and growth rates.

Key Objective 1

In the Central Munster BAU, Coillte aims to produce approximately 2.83m cubic metres of wood from its forests between 2021 and 2025.

Approximately 2.1m m^3 of this will be provided through felling and the balance 0.7m m^3 will be achieved through thinning.

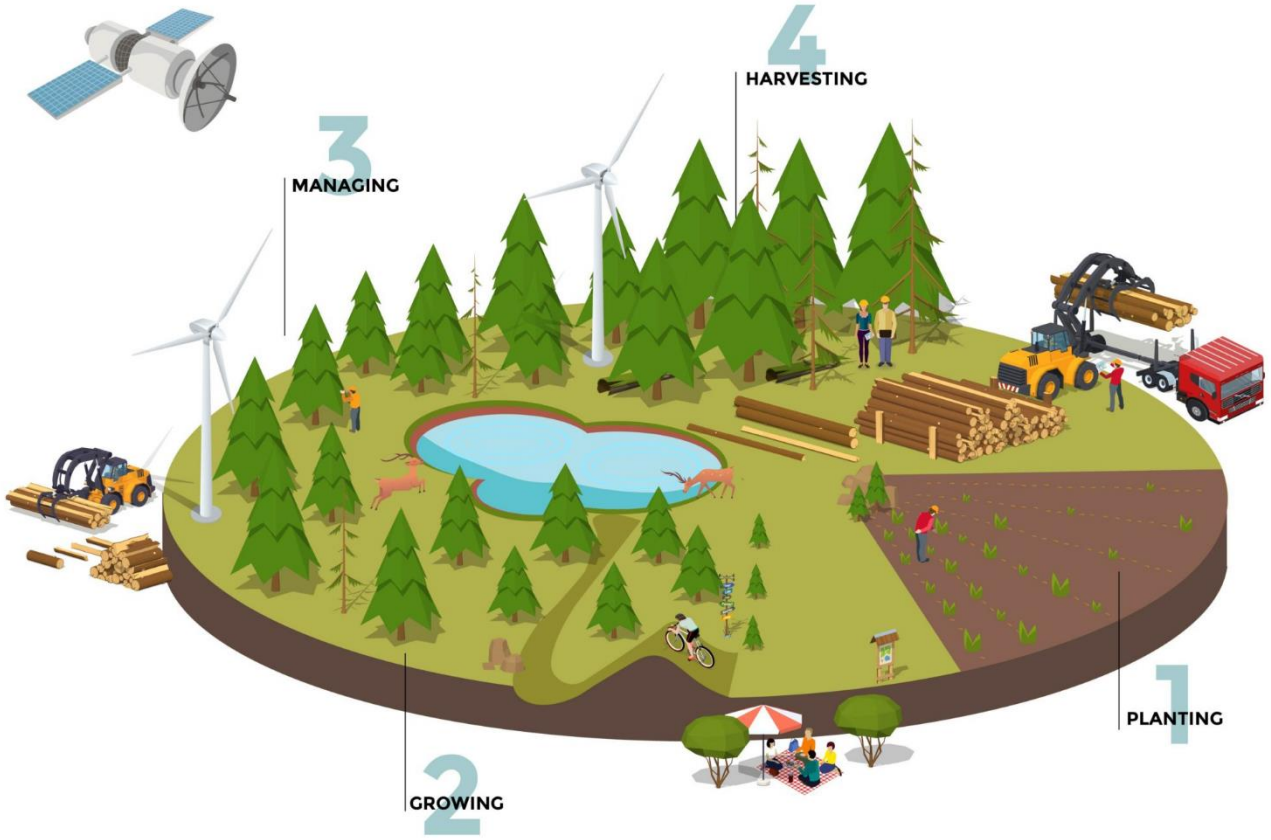


Figure 1: The Forest Cycle

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

- **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. 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 Revised 2014 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. BAU outlines a list, maintained on the Coillte website, of the clearfell and regeneration plans for the following year and notifies stakeholders annually.In addition, Coillte provides a Webmap which is accessible by the public from the Coillte website which shows indicative forest areas where harvesting will occur during the five year plan.

New Planting and Replanting

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

Key Objective 2

In the Central Munster BAU, Coillte aims to replant approximately 8,890 ha by 2025.

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 Central Munster 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. We also build new forest roads on our External Partnerships.

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

- construct approx. 70km of new roads where necessary 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 Central Munster BAU, Coillte aims to construct approximately 70 km of new forest roads by 2025.

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 Cork / Waterford / Tipperary / Limerick Co Councils with a view to improving access.
- Nutrient deficiencies The Central Munster BAU is primarily very fertile, however there are a small number of areas around Slievenamon, Ballyhouras, Knockmealdowns, Galtee Mountain Range and Littleton which require a treatment of fertiliser. This treatment will be carried out following consideration of 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 and conduct consultation with all relevant bodies with regard to safeguarding watercourses and comply fully with Forest Service guidelines on aerial fertilisation.
- 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.
- Restrictions on carrying out operations in Hen Harrier areas during nesting season and in Fresh Water Pearl Mussel areas in winter and wet months
- 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 Central Munster BAU.
- 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
- if required construct/upgrade roads to access timber

Key Objective 4

In the Central Munster BAU, Coillte aims to manage its folio of approximately 180 Farm Partnerships including our Premium Partners.

Overall production targets in the Central Munster BAU 2021- 2025

Coillte's proposed operating targets for the Central Munster BAU for the period of the plan- 2021-2025 are summarised in the following table.

Central Munster BAU main Coillte production targets 2021 – 2025[4]

Annual Totals					
Year	**2021**	**2022**	**2023**	**2024**	**2025**
Establishment					
Planting (ha)					
Regeneration planting (r/f) (Replanting after felling)	1700	1800	1800	1795	1795
Total Planting	1700	1800	1800	1795	1795
Harvesting Programme					
Harvest categories (000m3)					
Thinnings	134	142	141	141	138
Regeneration felling (P,C,W) felling	450	447	396	435	404
Total	**584**	**589**	**537**	**576**	**542**
Felling area (ha)	873	959	843	1,000	912
Roading Programme					
Roading (km)	14	13	14	14	15
New					
Upgrading	57	55	52	50	47
Total	**71**	**68**	**66**	**64**	**62**

[4] 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 Central Munster 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 land rights from Coillte in order to facilitate developments. 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.

Coillte has been exploring a range of partnerships and/or joint venture models in relation to its future renewable energy ambitions. Having considered its strategic options in 2018, Coillte has now decided to establish a formal development partnership with ESB, in the form a new standalone renewable energy company. It is expected to establish this development company (DevCO) in 2021.

Coillte adopts a best in class approach to the estate screening for its wind energy projects. This includes a holistic overview of a proposed site and its suitability to accommodate a potential wind farm. At a very early stage an environmental impact appraisal is undertaken. All third party energy interests for the sale/lease of turbine areas or access requirements also follow a screening exercise approval process.

It is important to note that 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 Five Year Forest Plan period, Coillte proposes to continue to investigate wind farm proposals and where appropriate continue to facilitate third party requests. Coillte's interests in projects developed by Coillte or in partnership will transfer to DevCo once that company is established.

The following projects are planned for progression on the Coillte estate within this BAU*:

Proposed third party planning permitted wind turbines on Coillte estate - correct as at January 2021			
Name of Wind Farm	**Location**	**Status**	**No. of wind turbines**
Upperchurch	Upperchurch Forest, Co. Tipperary	Planning permitted	2
Knocknamona	Dungarvan Forest. Co. Waterford	Planning permitted	7
Total			**9**

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

Proposed projects that will seek / are seeking planning permission for wind turbines on Coillte estate – correct as at January 2021			
Name of Wind Farm	**Location**	**Status**	**No. of wind turbines**
Russellstown (Glenahiry)	Clonmel Forest, Co. Waterford	Pre-planning	TBC

Lyrenacarriga	Knockanore Forest, Co. Waterford and Ballynoe Forest, Co. Cork	In planning	7
Total			**TBC**

Over the course of this BAU period, Coillte and at a later point DevCo 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. Coillte will also continue to facilitate third party developments where appropriate. In all instances, Coillte will avoid significant 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.

* Please note project details provided are subject to change and will be updated if required during completion of final plans.

Key Objective 5

In the Central Munster BAU, Coillte aims to develop/facilitate the development of 4 renewable energy projects in the period to 2025 and will continue to investigate and pursue other opportunities in this area during that period

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

Coillte allows permissive access to all of its lands for walking, except those areas closed from time to time for operational purposes. Cycling is allowed on trails and in areas specifically

designated for cycling. And all other recreational activities are managed under a licencing process. These activities can be undertaken by groups or individuals for both recreational purposes and as a commercial activity. Examples of such activities are mountain-bike events, shooting, pony trekking, off-road driving, orienteering and others as requested. Fees may be applied to licenced events and activities.

The position in regard to these activities 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 requirements for insurance cover and some of these conditions are specific to the activity and the particular location. Responsibility for issuing the licence, management, processing and safekeeping, rests with the manager at each location. A fee based on the activity is charged for each licence. All the information is available at this location Coillte Recreation Permit

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. 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 a Code of Practice which establishes minimum standards expected of all persons engaged in these activities alongside compliance with licence conditions and national legislation. All of the necessary information on hunting is located here Coillte Hunting Licences

3.4 Community, Recreation and Tourism Proposals

Coillte's proposed recreation priorities for the Central Munster BAU between 2021 and 2025 include:

- Ongoing engagement 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 unauthorised usage of the recreation infrastructure in line with best management practice and security policy.
- Continue to manage and maintain actions of the linear long distance National Waymarked Ways that pass through the BAU.
- Continue to maintain the EU LIFE bog restoration site at Sopwell in North Tipperary.
- Renew Memorandum of Understandings with existing community partnerships.
- Continue to liaise with 3rd parties to get funding streams for sustainable projects that deliver for the public good.
- Engage and deliver on the Strategic Partnership with Fáilte Ireland in relation to the Ballyhoura Trail Centre and associated infrastructure.

Key Objective 6

In the Central Munster BAU, Coillte aims to:

- **Provide a high quality recreation offering to the 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 Central Munster 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 fenced off on site by the forest manager to ensure their protection. 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 2021 - 2025.

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.

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 Central Munster BAU, Coillte aims to maintain and enhance the level of broadleaves in the BAU.

3.6.3 Biodiversity

At present 19% of the Coillte land area in the Central Munster BAU is designated and managed for 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 7,522 HA identified as old woodland. This represents 11% of the Coillte land in the BAU and 29% of the old woodland identified on Coillte's estate nationally. 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

  As a result of Phase 1 of our public consultation in relation to updating our plans Coillte will, during the course of the current plan period, include in our plans the completion of the inventory of ancient woodlands on the Coillte estate, and of assessing those sites in terms of their nature conservation value.
- Continuing the introduction of **riparian buffer zones** as part of the planning process along all permanent watercourses, typically these will consist of an unplanted strip on either side of the watercourse in addition to a strip of broadleaves. Aquatic buffer zones are established primarily for water protection purposes, and not for timber production.
- **Long term retention** of some stands of timber is practiced to enhance environmental, landscape and social benefits of our holdings. There are 55 Stands designated for retention in 17 forests in BAU totalling 546 ha. Scots pine is the only conifer tree regarded as a native species 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 **surveying 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 Central Munster 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, windrow 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. The disease has been detected in the BAU, and it will have an impact on species selection when planning landscape design.

Also, given the occurrence of streams and waterways in the forests, 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 too.

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 brash 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 Activity Pack 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.

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

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.

In 2021, as part of our Chemical Use Policy all necessary ESRA's were produced, copies of which can be made available if requested to info@coillte.ie.

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 Sharing our plans and consultation

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 in relation to its forests, at BAU level on its Forest Five Year plans and at forest operational level in advance of all high impact operations. The Forest Five Year plans are currently reviewed on a five year cycle;

- Each BAU hosts consultation meetings with stakeholders annually as part of Coillte's continuing consultation and engagement. This allows Coillte to discuss issues of common interest with stakeholders.

- 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, and many other stakeholders. Coillte carries out an annual update of our stakeholder list to ensure 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 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. Those who wish to be added to our stakeholder register can do so by completing and submitting the contact form on our website.

Coillte's stakeholder engagement process on our Five Year Forest Plans

It is Coillte's policy to engage widely with stakeholders in formulating its management plans. The Five Year Forest 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 forest plans is to set out plans for forest management activities that take place in each of our BAU's. In compiling these plans Coillte applies 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 our forest plans include the following: commercial planning, timber harvesting, timber sales, community facilities and benefits, environmental enhancement measures etc.

During the consultation process on these forest plans, Coillte actively engages with stakeholders, in the following ways:

- national newspaper adverts
- regional newspaper adverts
- consultation via Coillte's website
- emails or letters to our listed stakeholders
- BAU annual consultation meetings
- forest office meetings (by appointment) which allow further feedback

The stakeholder engagement process is carried out in two stages (scoping and draft plan stage) to take input from the public in relation to its forest 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 engagement 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 Stakeholder Call Log and assigned to the relevant BAU or business area for consideration, response and possible incorporation into our plans.

Details of incorporated changes and responses issued by Coillte to stakeholder submissions during Phases 1 and 2 of public consultation received for this Five Year Forest Plan will be published in the final version of our plans which are due to be completed later in 2021.

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 when our final plans are completed.

Appendix I - Summary of Archaeological Sites in Central Munster BAU

BAU	Type of Monument	No. In BAU	SMRS Number *
B5	Architectural fragment	2	WA004-028----, WA029-023002-
B5	Barrow - ditch barrow	2	TS066-041003-, TS066-041004-
B5	Barrow - mound barrow	1	TS052-016----
B5	Barrow - ring-barrow	7	LI024-309001-, LI024-309002-, LI024-309003-, TN033-038----, TN033-051----, WA006-022001-, WA006-027----
B5	Barrow - unclassified	1	TS066-041005-
B5	Battery	1	CO088-022003-
B5	Bawn	1	TS078-028001-
B5	Booley hut	2	CO008-066----, WA006-014003-
B5	Boundary stone	4	CO056-009----, TS091-021----, WA012-002----, WA024-045----
B5	Bridge	1	CO066-048----
B5	Bullaun stone	3	CO055-016002-, CO066-037----, WA029-023003-
B5	Burial	1	WA012-010----
B5	Burial ground	1	TN027-124----
B5	Burnt mound	1	WA004-016----
B5	Cairn - boundary cairn	6	CO008-019----, CO008-020----, CO008-023----, CO008-024----, CO008-025----, WA023-063----
B5	Cairn - burial cairn	1	LI055-043----
B5	Cairn - unclassified	25	CO008-021----, CO008-022----, LI048-068----, LI049-076----, LI049-078----, LI055-019----, LI055-022----, LI055-023001-, LI055-023002-, LI055-024----, LI055-027001-, LI055-027002-, LI055-029----, LI055-030----, LI055-031----, TN027-140002-, TN033-002----, TN038-018----, TN040-039002-, TS045-014----, TS075-064----, TS079-024005-, TS090-005----, TS091-023----, WA023-004----
B5	Castle - motte	1	TS054-054----
B5	Castle - tower house	1	CO064-109002-
B5	Church	1	TS091-002001-
B5	Cist	6	CO008-012001-, CO008-012003-, CO008-012004-, CO054-093----, TN040-039001-, WA006-022004-
B5	Cross	1	TN028-092----
B5	Deer park	1	TS054-071----
B5	Earthwork	5	CO064-109001-, LI048-066001-, LI056-023----, TS048-024----, TS087-031----

B5	Enclosure	43	CO009-001----, CO028-003----, CO034-046----, CO035-042----, CO035-046----, CO055-008----, CO055-012----, CO065-108----, CO088-103----, LI024-042----, LI024-165----, LI024-176----, LI025-017----, LI048-065001-, LI049-073----, LI049-164----, LI049-255----, LI058-018----, TN019-029----, TN033-041002-, TN038-017----, TS043-041----, TS043-044----, TS045-012----, TS045-020----, TS051-013----, TS051-038----, TS054-055----, TS054-056----, TS055-037----, TS059-062----, TS064-004----, TS067-106----, TS073-028----, TS091-008----, WA001-005----, WA005-006----, WA005-060----, WA005-061----, WA014-058001-, WA014-061----, WA022-044----, WA029-031----
B5	Field system	1	TS087-034----
B5	Fulacht fia	6	CO035-044----, CO045-083----, TS064-007----, WA006-025----, WA038-060001-, WA038-060002-
B5	Furnace	1	CO035-151----
B5	Hillfort	3	TN027-140001-, TS079-024001-, TS079-027----
B5	Hilltop enclosure	1	CO065-061----
B5	House - 17th century	1	TS078-028----
B5	House - 18th/19th century	1	WA001-037----
B5	House - indeterminate date	2	WA014-054----, WA015-059002-
B5	House - vernacular house	1	CO046-054----
B5	Hut site	4	WA014-058002-, WA014-058003-, WA014-058004-, WA015-059003-
B5	Icehouse	1	CO077-052----
B5	Kerb circle	1	WA006-024001-
B5	Linear earthwork	1	WA029-071----
B5	Mass-rock	4	CO017-028----, LI049-266----, TN032-015----, TS073-035----
B5	Megalithic structure	3	LI055-039----, LI056-047----, TN032-007----
B5	Megalithic tomb - passage tomb	1	LI049-077----
B5	Megalithic tomb - portal tomb	1	TS075-045----
B5	Megalithic tomb - unclassified	1	TN038-022----
B5	Megalithic tomb - wedge tomb	3	LI055-033----, TN039-007----, TN039-014----
B5	Midden	1	CO088-025----
B5	Mill - corn	2	CO035-039----, CO088-054----
B5	Millstone quarry	1	LI059-005----
B5	Mine	3	WA005-058----, WA007-088----, WA035-009----
B5	Moated site	4	CO035-047002-, TN023-060----, TS055-038----, WA015-059001-
B5	Mound	3	LI049-166----, TN028-033----, WA039-009----
B5	Promontory fort - inland	1	LI059A001----

B5	Redundant record	24	CO008-038----, CO054-030----, LI056-030----, TN035-083----, TS045-021----, TS045-023----, TS050-018----, TS051-039----, TS067-071----, TS068-138----, TS079-024002-, TS079-024003-, TS079-024004-, WA001-025----, WA001-026----, WA003-010----, WA006-023002-, WA006-024002-, WA011-001001-, WA011-001002-, WA011-001003-, WA013-003----, WA013-014----, WA030-075----
B5	Ringfort - rath	43	CO020-019----, CO028-001----, CO028-002----, CO034-039----, CO034-040001-, CO034-042001-, CO034-043----, CO034-045----, CO045-029----, CO046-053001-, CO053-049----, CO055-018----, CO075-032----, LI014-037----, LI014-136----, LI023-027----, TN011-024----, TN019-028----, TN019-037----, TN023-021----, TN023-022001-, TN023-022002-, TN023-051----, TN027-136----, TN028-017----, TS049-033----, TS055-036----, TS066-040----, TS069-043----, TS073-013----, TS077-024----, TS078-003----, TS081-011----, TS082-053----, TS086-003----, WA001-004----, WA001-006----, WA002-006----, WA002-012----, WA002-035----, WA002-036----, WA015-002----, WA034-002----
B5	Ringfort - unclassified	2	WA017-052----, WA017-053----
B5	Ritual site - holy well	11	CO025-103----, CO035-069----, CO054-097----, CO055-016001-, CO064-025----, LI023-028----, LI055-020----, TN028-031----, WA029-023001-, WA030-061003-, WA035-006----
B5	Road - road/trackway	2	TS048-043----, TS091-001----
B5	Sheepfold	1	WA014-059----
B5	Souterrain	10	CO020-024----, CO034-040002-, CO034-042002-, CO035-079----, CO045-128----, CO046-053002-, LI048-062----, LI048-066002-, TS078-003001-, WA034-073----
B5	Standing stone	23	CO008-012002-, CO046-051----, CO054-041----, CO054-044----, CO054-092----, CO054-112----, CO055-060----, LI048-065002-, LI048-065003-, LI048-065004-, TN023-022003-, TN023-067----, TN033-040----, TN039-058----, WA002-008----, WA006-022003-, WA006-022005-, WA006-022006-, WA006-039----, WA013-021----, WA014-060----, WA014-062----, WA033-009----
B5	Standing stone - pair	4	LI048-039----, TN019-040----, TN033-041001-, WA033-008----
B5	Stone circle	1	LI056-052----
B5	Stone row	3	CO054-040----, WA006-022002-, WA006-023001-
B5	Structure	1	TS075-059----
B5	Sweathouse	1	TN032-010----
B5	Water mill - horizontal-wheeled	1	CO054-031004-
B5	Water mill - unclassified	1	TN019-003----

B5	Enclosure	43	CO009-001----, CO028-003----, CO034-046----, CO035-042----, CO035-046----, CO055-008----, CO055-012----, CO065-108----, CO088-103----, LI024-042----, LI024-165----, LI024-176----, LI025-017----, LI048-065001-, LI049-073----, LI049-164----, LI049-255----, LI058-018----, TN019-029----, TN033-041002-, TN038-017----, TS043-041----, TS043-044----, TS045-012----, TS045-020----, TS051-013----, TS051-038----, TS054-055----, TS054-056----, TS055-037----, TS059-062----, TS064-004----, TS067-106----, TS073-028----, TS091-008----, WA001-005----, WA005-006----, WA005-060----, WA005-061----, WA014-058001-, WA014-061----, WA022-044----, WA029-031----
B5	Field system	1	TS087-034----
B5	Fulacht fia	6	CO035-044----, CO045-083----, TS064-007----, WA006-025----, WA038-060001-, WA038-060002-
B5	Furnace	1	CO035-151----
B5	Hillfort	3	TN027-140001-, TS079-024001-, TS079-027----
B5	Hilltop enclosure	1	CO065-061----
B5	House - 17th century	1	TS078-028----
B5	House - 18th/19th century	1	WA001-037----
B5	House - indeterminate date	2	WA014-054----, WA015-059002-
B5	House - vernacular house	1	CO046-054----
B5	Hut site	4	WA014-058002-, WA014-058003-, WA014-058004-, WA015-059003-
B5	Icehouse	1	CO077-052----
B5	Kerb circle	1	WA006-024001-
B5	Linear earthwork	1	WA029-071----
B5	Mass-rock	4	CO017-028----, LI049-266----, TN032-015----, TS073-035----
B5	Megalithic structure	3	LI055-039----, LI056-047----, TN032-007----
B5	Megalithic tomb - passage tomb	1	LI049-077----
B5	Megalithic tomb - portal tomb	1	TS075-045----
B5	Megalithic tomb - unclassified	1	TN038-022----
B5	Megalithic tomb - wedge tomb	3	LI055-033----, TN039-007----, TN039-014----
B5	Midden	1	CO088-025----
B5	Mill - corn	2	CO035-039----, CO088-054----
B5	Millstone quarry	1	LI059-005----
B5	Mine	3	WA005-058----, WA007-088----, WA035-009----
B5	Moated site	4	CO035-047002-, TN023-060----, TS055-038----, WA015-059001-
B5	Mound	3	LI049-166----, TN028-033----, WA039-009----
B5	Promontory fort - inland	1	LI059A001----

B5	Redundant record	24	CO008-038----, CO054-030----, LI056-030----, TN035-083----, TS045-021----, TS045-023----, TS050-018----, TS051-039----, TS067-071----, TS068-138----, TS079-024002-, TS079-024003-, TS079-024004-, WA001-025----, WA001-026----, WA003-010----, WA006-023002-, WA006-024002-, WA011-001001-, WA011-001002-, WA011-001003-, WA013-003----, WA013-014----, WA030-075----
B5	Ringfort - rath	43	CO020-019----, CO028-001----, CO028-002----, CO034-039----, CO034-040001-, CO034-042001-, CO034-043----, CO034-045----, CO045-029----, CO046-053001-, CO053-049----, CO055-018----, CO075-032----, LI014-037----, LI014-136----, LI023-027----, TN011-024----, TN019-028----, TN019-037----, TN023-021----, TN023-022001-, TN023-022002-, TN023-051----, TN027-136----, TN028-017----, TS049-033----, TS055-036----, TS066-040----, TS069-043----, TS073-013----, TS077-024----, TS078-003----, TS081-011----, TS082-053----, TS086-003----, WA001-004----, WA001-006----, WA002-006----, WA002-012----, WA002-035----, WA002-036----, WA015-002----, WA034-002----
B5	Ringfort - unclassified	2	WA017-052----, WA017-053----
B5	Ritual site - holy well	11	CO025-103----, CO035-069----, CO054-097----, CO055-016001-, CO064-025----, LI023-028----, LI055-020----, TN028-031----, WA029-023001-, WA030-061003-, WA035-006----
B5	Road - road/trackway	2	TS048-043----, TS091-001----
B5	Sheepfold	1	WA014-059----
B5	Souterrain	10	CO020-024----, CO034-040002-, CO034-042002-, CO035-079----, CO045-128----, CO046-053002-, LI048-062----, LI048-066002-, TS078-003001-, WA034-073----
B5	Standing stone	23	CO008-012002-, CO046-051----, CO054-041----, CO054-044----, CO054-092----, CO054-112----, CO055-060----, LI048-065002-, LI048-065003-, LI048-065004-, TN023-022003-, TN023-067----, TN033-040----, TN039-058----, WA002-008----, WA006-022003-, WA006-022005-, WA006-022006-, WA006-039----, WA013-021----, WA014-060----, WA014-062----, WA033-009-----
B5	Standing stone - pair	4	LI048-039----, TN019-040----, TN033-041001-, WA033-008----
B5	Stone circle	1	LI056-052----
B5	Stone row	3	CO054-040----, WA006-022002-, WA006-023001-
B5	Structure	1	TS075-059----
B5	Sweathouse	1	TN032-010----
B5	Water mill - horizontal-wheeled	1	CO054-031004-
B5	Water mill - unclassified	1	TN019-003----

* The SMRS numbers listed in the above table can be used to view and search for these monuments using The National Monuments Service Map viewer available at 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 Central Munster BAU

Special habitats in Central Munster BAU

Main Properties	Habitat Quality	Management Strategy	Management 2021-2025	Issues to be Addressed
Petrifying springs (FP1)				
Eroding/Upland rivers (FW1) & Depositing/lowland rivers (FW2)				
River Suir and tributaries – SAC 2137	Remove conifers through harvesting and maintain habitat during establishment process	Protection and preservation of rare species within these rivers by the creation of buffer zones	Monitor through biodiversity management plans	Avoidance of siltation and eutrophication
Blackwater and tributaries – SAC 2170		Protection and preservation of rare species within these rivers by the creation of buffer zones		Avoidance of siltation and eutrophication
Dry Heath (HH1)				
Cooneen, Ballyhourigan, Barnabaun, Bauraglanna, Bunkimalta, Coolruntha, Middlequarter	Dry Heath	Retain existing unplanted dry heath habitat. Increase area of open dry peat habitat. Restore. Open riparian zones	Retain open areas. Monitor.	
Shanrahan Foildarrig Killeatin Gortacullin Kildanoge Knockballiniry Knockalisheen Ballyhaght Jamestown Glenanair West Glenanair East Long Mountain Coolfree	Good quality dry heath habitat in relatively natural condition.	Retain existing unplanted dry heath habitat. Increase area of open ground. Restore open riparian zones.	Retain open areas. Fell, planting by agreement with NPWS.	Monitor grazing and burning.
Wet Heath (HH3)				
Knocknamoherag h Ballyroe Ballyhaght Jamestown Glenanair West Glenanair East Long Mountain Coombs Toor	Good quality wet heath	Retain existing unplanted wet heath habitat. Restore open riparian zones.	Retain open areas. Restore riparian zones	Maintain boundary integrity
Raised Bog (PB1)				

Scohaboy Bog – Sopwell Property TY01 Derrybreen Bog TY01	Raised bog minimally impacted by anthropogenic activity. Deep Bog areas forested but suitable for restoration.	Retain existing unplanted Raised bog habitat. Restore open riparian zones. Some sites in the District have been selected for restoration under Coillte's Life-Nature Raised Bog Restoration Project.	Retain open areas. Block drains. Implement ongoing monitoring of Life- Nature Project sites.	Regeneration of Birch in areas where forest has been removed.
Blanket Bog (PB2)				
Dromdeeveen Upland blanket bog (NHA) Keeper Hill TY03 Mauhersleive Mountain TY05	Blanket bog minimally impacted by anthropogenic activity. Deep Bog areas forested but suitable for restoration.	Retain existing unplanted blanket bog habitat. Restore open riparian zones.	Retain open areas.	Regeneration of Birch in areas where forest has been removed.

Special habitats (non-forest) in Central Munster BAU

Main Properties	Habitat Quality	Management Strategy	Management 2021-2025	Issues to be Addressed
Oligotrophic Lakes				
Monaincha – TY08	Good quality Oligotrophic water-bodies in acid peatland catchments.	Retain and monitor.	Retain and monitor.	N/A

Protected or rare species in Central Munster BAU

Main Properties	Habitat Quality	Management Strategy	Management 2021-2025	Issues to be Addressed
Bats				
Gortarush - TY11	A Coillte-owned building in the International Scout Centre houses a colony of Whiskered bats and is an NHA, Dundrum 2096	Protect roost and maintain suitable foraging habitat.	The creation and/or maintenance of broad- leaved tree or shrub edges to certain forest tracks leading from the roost are part of the management plan for the Biodiversity Area.	Close liaison with NPWS on an ongoing basis.
Hen Harrier				
CK06, LK03, LK07, LK10, TY03, TY04, TY05, TY06, TY10 – (SPA 4165)	These SPA's are of good quality and provide a highly rated Hen Harrier habitats.	Maintain suitable foraging and nesting habitats.	Consultation with NPWS & FS, retain open space and restructuring plan.	Reduction of log supply to the industry, loss of revenue, additional costs.
Little Egrets				
Ballyannon	Good quality high woodland roosts adjacent to main feeding estuarine habitats.	Retain High Forest where Egrets have likely nesting sites	Retain old conifers for nesting sites	Consultation with Steering Group Members
Freshwater Pearl Mussel				

All properties within the 6km zone such as: Licky, Clodiagh and Munster Blackwater Rivers and tributaries Aherlow Rivers	Freshwater pearl mussel, Salmon, River, Brook and Sea lampreys, Otter (Annex II habitats Directive)	Manage all forest operations in an environmentally friendly manner. Adhere to all Forest Service guidelines and SOPs.	Carry out Appropriate assessments and complete EIA's on relevant sensitive Clearfell sites within the catchment of the pearl mussel of the Munster Blackwater in consultation with NPWS and Forest Service. Ensure minimal impact on soil and water quality during forest operations upstream of FPM populations through Coillte EIA procedure.	Be aware of current legislation. Maintenance of water quality.
Freshwater Pearl Mussel				
Margaritifera durrovensis Nore Catchment – TY07 - Longford wood, Gorteenashingaun (part of) TY08 - Monaincha, Sheehys, Timoney, Gortnagowna TY12 - Grangecrag, Kilcooly, Sallybog, Crab, Knockatooreen, Kilbraugh	These catchments are of good water quality and provide a highly rated pearl mussel habitat *M. durrovensis* – hardwater spp., only occurs in Ireland, one small population in River Nore	Comply with FS FWPM Guidelines on.	Consider postponement of clear-felling on deep peat sites within the catchments of the pearl mussel in consultation with NPWS. Recommendations on Forest Service FWPM Guidelines and WFD Sub-basin FWPM Forestry Management plans to apply. Liaise with pearl mussel technical group of FS	Reduction of log supply to the timber industry loss of revenue. Increased cost of special protective measures.
White Clawed Freshwater Crayfish				
Sopwell	Habitat adjacent to Raised bog restoration Project EU LIFE Nature	Maintain and monitor and manage native species and regeneration	Maintain and monitor and manage native species and regeneration	No Impact

Twaite Shad				
Lower parts of Suir and Munster Blackwater rivers Lough Derg	Not Known	Maintain best practice riparian zone management during operations adjacent to areas with Shad	Maintain best practice riparian zone management during operations adjacent to areas with Shad	None of note
Wood Millet (Rare Plant and Old Woodland indicator species)				
East Cork Woodlands	Broadleaf and Mixed woodlands of moderate naturalness retaining remnant relict native under storey vegetation	Conserve plant populations and habitats as recorded in ecological surveys.	Retain populations at known locations through maintenance of existing habitat.	

Native and mixed woodlands in Central Munster BAU

Main Properties	**Habitat Quality**	**Management Strategy**	**Management 2021-2025**	**Issues to be Addressed**
Oak-birch-holly Woodland (WN1)				
Greenwood Ballard	Small sized woods but in general of good quality, some problems with invasive exotics e.g. Rhododendron	Maintain areas of antive oak canopy, facilitate expansion of oak wood, and monitor spread of exotic species.	Fell, replant with native species where appropriate.	Cost of invasive species removal
Oak-ash Woodland (WN2)				
Barnane TY07	Small to medium sized woods but in general of good quality, some problems with invasive exotics e.g. *Rhododendron ponticum*	Maintain areas of native oak canopy, facilitate expansion of oak wood, and remove exotics.	Utilise transformation to native woodland through thinning out conifers to retain woodland condition. Fell at rotation, replant with native broadleaves and Scots pine where appropriate. Address rhododendron control.	Cost of Rhodo removal and control of deer.

Wet woodland (Riparian-Wet Willow-Alder-Ash WN5/WN6)				
Castlelough TY02	Small to medium sized woods but in general of good quality some problems with invasive exotics.	Maintain areas of native canopy, facilitate expansion of native wood, and remove exotics.	Address control and removal of exotic species.	Cost of removal of exotics.
Mixed broadleaved Woodland (WD1)				
Garranorish TY01 Knockanacree TY01	Mixed woodland, with areas of relict native ground flora. Some problems with invasive exotics e.g. Rhododendron and Cherry laurel	Restore some areas to broadleaf woodland in most suitable areas. Maintain woodland structure and species diversity in other areas. Implement Coillte OWS policy in these woodlands.	Manage under CCF. Utilise transformation to native woodland through thinning out conifers to retain woodland condition. Address Rhododendron and Cherry laurel control.	Cost of Rhodo and Cherry laurel removal. Control of deer
Castlemartyr Glenbower Cahir Park Castleblagh Gurteen Cappagh Rincrew Dromana	Mixed woodland retains areas of relict native ground flora. Some problems with invasive exotics e.g Rhododendron and Cherry Laurel	Restore native woodland in most suitable parts of these woodlands. Maintain woodland structure and species diversity in other areas. Implement LISS in these woodlands.	Fell, replant with native species Address rhododendron and cherry laurel control.	Cost of invasive species removal
Mixed broadleaved/conifer Woodland (WD2, WD3)				

Castlelough TY02 Coolbaun TY02 Laghile TY01 Castletown TY02	Mixed broadleaf/conifer woodland, retains areas of relict native ground flora. some problems with invasive exotics e.g. Rhododendron and Cherry laurel	Restore some areas to broadleaf woodland in most suitable parts of these woodlands. Maintain woodland structure and species diversity in other areas. Implement Coillte's OWS policy in these woodlands.	Manage under CCF. Utilise transformation to native woodland through thinning out conifers to retain woodland condition. Fell, replant with broadleaf and light crowned conifer species where appropriate. Address Rhododendron and Cherry laurel control.	Cost of Rhodo and Cherry laurel removal. Deer browsing
Glensheskin Castleblagh Gurteen Cappagh	Mixed Broadleaf/Conifer woodland retains areas of relict native ground flora. Some problems with invasive exotics e.g Rhododendron and Cherry Laurel	Restore some areas to native woodland in most suitable parts of these woodlands. Maintain woodland structure and species diversity in other areas Implement LISS in these woodlands.	Fell, replant with native species Address rhododendron and cherry laurel control.	Cost of invasive species removal
Mixed conifer Woodland (WD3)				
Glenabo Graigue Castleblagh	Mixed conifer woodland retains areas of relict native ground flora. some problems with invasive exotics e.g Rhododendron and Cherry Laurel	Restore native woodland in most suitable parts of these woodlands. Retain some areas of Light crowned conifer species where ground flora is of good quality. Replant areas with Light crowned conifer species Implement LISS in these woodlands.	Fell, replant with native species and or light crowned conifer species. Address rhododendron and cherry laurel control.	Cost of invasive species removal

Species

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

Notable Species	Notable Species	Notable Mammals
Daboecia cantabrica Lathraea squamaria Neottia nidus-avis Thelypteris palustris Listera cordata Saxifraga spathularis Rhynchospora fusca Rhamnus cathartica Eriocaulon aquaticum, Eriophorum gracile, Arctostaphylos uva-ursi,. Juniperus communis Erica erigena	Platanthera bifolia Thelypteris limbosperma, Carex acuta Cephalanthera longifolia Carex limosa Vaccinium oxycoccos Empetrum nigrum Vaccinium oxycoccos Cladium masiscus Carex lasiocarpa, Ranunculus lingua	Lesser Horseshoe Bat (Rhinolophus hipposideros) Pine Marten (Martes martes) Badger (Meles meles),

Appendix III – Recreation Facilities in the Central Munster BAU

Site specific information for many of these sites is available on www.coillte.ie

Location	Description
Ardarou / Glenville	River side walk including 2 timber footbridges. Car park and picnic facilities. Maintained in conjunction with Avondhu Blackwater Rural Social Scheme.
Aherlow – Glen of Aherlow	Slievenamuc/Gortavoher Long term lease of land for picnic and parking area at Christ the King and adjoining Nature Park Car park at Ardarou Car park and picnic area at Bansha Woods 7 National Looped walks that are maintained by Aherlow Fáilte Ballyhoura Way NWMW Northern slopes of the Galtys Parking area at Glencoshabinna Partnership with Mountain Meitheal South East in upgrading access points.
Ballyannan	Popular wood on the fringe of Midleton Town popular with walkers and joggers.
Ballard Waterfall	Looped walk developed by Avondhu Blackwater & Araglin and Mountain Barracks Community to access local waterfall.
Ballyhoura Trail Centre	• Trailhead facilities include; ○ access to 6 MTB trails ○ access to MTB skills loop ○ 3 waymarked walking trails and a Nature trail ○ Ballyhoura Way ○ Trim trail ○ Car parking ○ bike hire (Trailriders) ○ bike wash ○ showers and changing facilities ○ picnic areas These facilities are maintained in conjunction with Ballyhoura Development Ltd.

Location	Description
Ballinaboola (close to Ballyhea on the western side of the Ballyhouras)	• Car park • 2 National Looped walks • Ballyhoura Way Maintained in conjunction with Ballyhoura Development Ltd.
Bansha Woods	Car park and picnic area with a pond.
Bishops Wood, Dundrum, Co. Tipperary	Located approximately 1km from Dundrum village. This site has a car park and picnic area along with woodland walks. There is a Scout Centre located in the woods also.
Carey's Castle, Clonmel, Co Tipperary	Car park and picnic area located beside the ruins of an old house. The East Munster way passes through this site.
Caher Park (close to Cahir)	• Parking area • Access to the Suir • Fishing stands for people with disabilities (project in conjunction with Tipperary Co. Co., Inland Fisheries, local Angling Club) • Tipperary Heritage Way EU LIFE Site (priority woodland) - restore and maintain Yew woodland.
Castleblagh (close to Ballyhooly)	Looped walk Blackwater Avondhu Way Maintained in conjunction with Avondhu Blackwater Rural Social Scheme.
Castlemartyr	Two separate properties with; 3 way marked trails Picnic facilities nature information car park Maintained in conjunction with Castlemartyr Community Employment Schemes and Ladysbridge Community.
Colligan (close to Dungarvan)	car park Picnic facilities 2 National Looped Walks

Location	Description
Corrin (close to Fermoy)	1 looped walk Car park Picnic facilities Access to Corrin Wildlife Reserve, managed by Rathcormack Gun Club
Curragh (close to Midleton)	2 parking areas Picnic facilities at the Ballynaclashy car park.
Devil's Bit, Co Tipperary	There is a National Looped Walk that runs close to the famous Devils' Bit landmark.
Doonane, Co Tipperary	A National Looped Walk and linear mountain access route passes through this forest in the Silvermines / Keeper Hill area. There is a mass rock, sweat house and cairn off the trails that are also popular with walkers. A car park was constructed in recent years. Up-to- date signage is also in place. The Slieve Felim Way, a long distance National Way Marked Way also passes through this forest.
Dromana (close to Villierstown, Co. Waterford)	Development of two looped trails by the community in Villerstown that links in with the Coillte car park.
Darragh Hills (close to Kilfinnane)	2 National looped walks with archaeological features and scenic views. Maintained in conjunction with Ballyhoura Development Ltd.
Faithlegg, Co Waterford	Woodland walks with panoramic views of the Suir and Nore rivers confluence.
Galty Castle (close to Kilbeheny)	2 National Looped walk Car park Picnic facilities Maintained in conjunction with Ballyhoura Development Ltd. Mountain Meitheal projects also in Coopers wood that facilitate quick and scenic access to nearby Kings Yard.
Glenanair (close to Ardpatrick)	car-park picnic area National Looped Walk. Maintained in conjunction with Ballyhoura Development Ltd.

Location	Description
Glansheskin, Kilworth, Co. Cork	Large car park and picnic area. East Munster way passes through this wood.
Glenstal, Co Limerick	A National Looped Walk has its trailhead at the forest entrance to this property and a large section of this trail passes through the forest. Up-to-date signage is in place. The Slieve Felim Way, a long distance National Way Marked Way also passes through this forest.
Glenabo (close to Fermoy)	Car park Blackwater Avondhu Way
Glenbower (close to Killeagh)	Amenity area comprising of both Coillte and community woodland with walking routes, car park and picnic facilities.
Glengarra (close to Cahir)	Arboretum Millennium Woodland LIFE conservation project to restore and maintain oak woodland. 2 looped woodland walks Car park Picnic facilities Maintained in conjunction with FÁS Burncourt Community Council has an ongoing project in restoration of the listed building, the Mountain Lodge in the Wood.
Glenshelane (close to Cappoquin)	Car park Picnic facilities 4 walks all of which are serviced by a number of footbridges
Grange Crag, Co Tipperary	A number of looped trails and linear nature trail. There are a number of features from the bygone estate days that are included in the walks including an ice house and folly tower. The top of the tower can be accessed via an external staircase. There are panoramic views on top.
Greenfield, Cappawhite, Co. Tipperary	Car park, ponds and the Multeen Way are located in this forest.
Kilbarry (close to Coolagown/Fermoy)	Coolagown, east of Fermoy, amenity woodland consisting of car park, walking trails and viewing points/information panels. Coolagown Development Group are very prominent on this site.

Location	Description
Kilquane, Knockraha, Co. Cork	Picnic area and walk to local holy well.
Knockmealdowns (northern flanks)	7 number of looped walks • Duck pond educational conservation project, much loved by young and old alike. (Ardfinnan, Ballybacon, Grange and Newcastle (ABGN) Gun Club) Tipperary Heritage Way East Munster Way Blackwater Way St. Declan's Way Kilballyboy car park Maintained in conjunction with ABGN Gun Club and Knockmealdowns Active.
Kilclooney, Waterford	Car park, picnic area, woodland walks and viewpoints.
Knockalough, Co Tipperary	National Looped Walks that originate from the village in Upperchurch pass through this forest.
Knockanacree, Co Tipperary	This is a broadleaf woodland on the outskirts of the eco-village of Cloughjordan. There are 3 waymarked trails in the forest.
Knockanroe/Step, Co Tipperary	A National Looped Walk passes through this forest which is located in the Silvermines. It is very popular with walkers. Up-to-date signage is in place. The Slieve Felim Way, a long distance National Way Marked Way also passes through this forest.
Laghile, Co Tipperary	A National Looped Walk that originates in the village of Kilcommon passes through this forest.
Mahon Bridge / Crough Wood	Community project with inputs from Waterford Co. Co. comprising of a woodland / river walk that many use to access the Comeragh mountains.
Marl Bog, Co Tipperary	Located close to the village of Dundrum, this site is very popular with the walkers and runners from the local community and athletics club. Facilities include an extended car park, picnic area, lake and 2 waymarked woodland walks.
Marlfield, Clonmel, Co. Tipperary	Parking spot and 2 looped walks on the slopes leading down to the River Suir.

Location	Description
Marlogue (Great Island of Cobh)	car park picnic facilities access to the sea
Moanbaun (close to Watergrasshill)	Parking area Looped Walk Strong links with Watergrasshill Community Council
Mountain Meitheal South East	Voluntary trail builders construct, upgrade and maintain upgrade trails in key locations to enhance the experience for hill walkers.
National WayMarked Ways – multi day walks	The BAU has a number of long distance trails traversing it's forests • Balllyhoura Way • Blackwater Avondhu Way • Multeen Way • Ormonde Way • St. Declans Way • Tipperary Heritage Way • Slieve Felim Way
Rostellan, Aghada, Co. Cork	Parking and family cycle area. One of the recreation forest properties that are located beside Cork Harbour.
Scaragh Woods (outskirts of Cahir)	Parking area 3 looped walks developed by Cahir Historical Society
Scohaboy Bog and Sopwell, Cloughjordan, Co. Tipperary	EU Demonstration LIFE Nature conservation site LIFE09 NAT/IE/000222, that includes information panels, a bog bridge out onto the bog and viewing platform. Cloughjordan Community Development Committee have developed a trail and trailhead that links into the bog bridge. The Ormonde Way also passes through this site.

Appendix IV – Monitoring

Economic Parameters		
No.	**Parameter**	**Measure**
Establishment		
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	
Harvesting		
7	Clearfelled area	hectares
8	Clearfell areas greater than 20ha in Upload areas.	no. of Sales Proposals
9	Clearfell areas greater than 5ha in Lowland areas.	no. of Sales Proposals
10	Thinning area	harvest area (hectares)
Silvicultural Systems		
11	Alternative to Clearfell sites	number of LISS sites
12	Alternative to Clearfell area	area of LISS sites (hectares)
Forest Design		
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
Species Composition		
16	Primary species	% area of BAU
17	Secondary species	% area of BAU
18	Broadleaves	% area of BAU
19	Open Space	% area of BAU
Chemicals		
20	Chemical usage	Kgs active ingredient/ha
Land Transactions		
21	Area sold by BAU	hectares
22	Area acquired by BAU	hectares
Environmental Parameters		
No.	**Parameter**	**Measure**
Biodiversity		
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^3) in BAU

Water Monitoring		
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
Forest Health		
38	BAU Forest Health Survey results	any damage recorded [y/n]
39	BAU Forest Health Survey:	any action required to be taken [y/n]
Abiotic Damage		
40	Fires – stocked area damaged	hectares
41	Fire break production	meters
42	Windthrow area	hectares
Deer Culls		
43	Current deer cull return figures	number culled
Social Parameters		
No.	**Parameter**	**Measure**
Cultural Heritage		
44	Protected archaeological monuments identified	number
45	Local features/folk heritage recorded on GIS	number
Recreation		
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
Complaints		
55	Complaints received	number registered
56	Complaints addressed	number signed off
Community		
57	Community partnerships	number
Health and Safety		
58	Notifyable accidents	number

Appendix V – Forest Details

Forest	Forest Gross Area (ha)	Clearfell Volume m^3					Thinning Volume m^3					Clearfell		
		2021	2022	2023	2024	2025	2021	2022	2023	2024	2025	2021	2022	20
CK06 - Ballyhouras	4,457	13,502	14,934	17,776	5,535	39,121	6,001	15,333	7,019	10,689	7,524	24	32	
CK07 - Kilworth	1,792	8,710	7,231	5,435	26,248	14,087	3,235	5,268	1,623	3,487	6,043	15	15	
CK08 - Ballyhooly	2,320	18,265	1,272	4,021	7,732	13,831	9,071	7,104	4,984	4,478	8,428	42	4	
CK14 - Midleton	2,374	9,127	32,480	15,479	35,018	20,811	6,430	8,642	9,968	7,392	7,049	18	71	
CK15 - Ballynoe	2,295	7,364	17,666	4,683	22,120	12,539	5,430	3,180	6,699	3,575	4,506	15	34	
LK03 - Glenstal	2,508	12,657	10,394	15,101	6,129	15,812	8,522	7,267	7,997	6,621	3,177	23	22	
LK04 - Lough Gur	65	0	0	0	0	0	0	0	0	0	0	0	0	
LK05 - Galbally	87	0	0	0	0	0	0	0	0	740	62	0	0	
LK06 - Galty	957	9,597	5,746	744	3,463	2,036	2,271	754	2,344	878	1,194	19	12	
LK07 - Kilfinnane	2,900	15,395	6,490	20,366	59,866	16,927	1,650	2,335	3,074	1,055	1,801	28	12	
LK10 - Ballylanders	880	276	436	14,271	403	4,638	323	1,283	669	1,615	584	0	1	
TY01 - Borrisokane	713	2,698	4,307	3,331	4,658	0	350	0	350	0	185	6	10	
TY02 - Arra	822	894	6,541	1,475	7,127	6,569	4,150	1,143	2,242	3,076	447	2	15	
TY03 - Keeper Hill	3,382	61,273	38,375	26,802	52,779	15,355	9,031	9,729	6,230	6,565	7,733	128	79	
TY04 - Silvermines	760	2,825	5,137	9,216	4,065	4,843	2,915	4,040	1,878	4,743	1,102	5	11	
TY05 - Kilcommon	1,267	9,365	20,256	12,951	7,203	2,796	577	280	589	25	427	20	41	
TY06 - Templederry	1,696	9,876	14,941	19,304	6,976	3,506	1,557	440	1,631	2,176	2,393	18	37	
TY07 - Devils Bit	1,424	6,367	19,046	19,092	8,327	20,249	3,978	1,600	2,399	1,084	2,934	13	44	
TY08 - Templemore	996	9,993	6,313	3,014	207	861	0	0	0	115	0	22	14	
TY09 - Upperchurch	1,721	24,497	8,397	1,936	8,484	5,904	1,655	4,163	3,239	1,679	2,119	47	16	
TY10 - Redhill	1,495	7,106	6,698	7,140	5,376	19,717	4,200	3,360	3,223	815	1,702	14	17	
TY11 - Dundrum	668	6,574	2,991	4,157	3,786	6,902	352	1,209	1,420	0	0	13	5	
TY12 - Littleton	2,274	10,002	13,703	16,887	3,556	6,461	1,259	376	0	407	2,152	21	31	
TY13 - Fethard	1,142	7,613	4,224	3,470	5,630	6,613	946	2,089	2,861	1,970	2,494	15	8	
TY14 - Slievenamon	1,347	19,807	6,847	11,392	2,686	4,178	2,093	2,358	3,525	5,778	5,139	35	16	
TY15 - Slievenamuc	1,543	1,113	7,633	4,939	1,822	5,000	1,162	2,126	1,258	2,493	1,782	2	14	
TY16 - Aherlow	1,303	2,398	736	153	8,658	12,637	3,103	1,842	870	1,861	2,281	5	2	
TY17 - Cahir	3,566	10,063	25,714	12,022	16,686	11,860	4,419	10,420	3,734	6,094	4,389	19	55	
TY18 - Glengarra	870	7,148	17,188	5,581	2,707	5,638	3,462	1,887	2,551	342	2,799	14	35	
TY19 - Knockmealdowns	4,669	21,581	20,269	11,845	7,902	32,451	3,623	3,890	2,428	5,042	2,571	40	41	
TY20 - Barnahown	986	9,548	3,987	640	11,505	769	861	1,730	955	3,590	1,025	22	11	
WD01 - Clonmel	3,102	5,994	6,420	20,446	6,693	5,391	9,941	5,506	8,020	6,860	11,102	12	13	
WD02 - Kilsheelan	2,561	21,635	31,639	16,413	20,355	8,904	4,504	2,252	4,428	5,848	9,026	41	74	
WD03 - Portlaw	1,214	3,221	10,674	4,001	5,735	15,744	1,820	2,455	3,308	3,919	2,475	8	21	
WD04 - Tramore	854	892	1,465	400	8,791	4,502	3,804	2,111	1,652	4,543	2,640	2	4	
WD05 - Kilmacthomas	2,709	22,148	17,805	18,631	13,715	18,708	4,073	4,828	6,734	7,409	8,033	40	38	
WD06 - Dungarvan	3,620	52,486	36,507	25,996	18,888	16,926	8,496	9,947	15,132	10,754	6,731	92	78	
WD07 - Mellory	1,792	2,763	1,479	4,323	1,378	2,909	1,805	1,561	4,138	4,964	4,582	6	3	
WD08 - The Vee	1,262	649	3,481	23,175	1,773	3,572	642	983	1,015	837	4,182	1	8	
WD09 - Ballyduff	969	7,293	4,960	5,817	374	2,010	2,770	3,333	4,631	2,928	1,808	14	9	
WD10 - Knockanore	1,671	6,831	2,812	3,356	20,237	13,404	3,830	4,844	6,503	4,974	3,812	12	6	

Appendix VI – BAU Map