



Scoping a new forestry plan for Antrim area forests and woodland

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Introduction

Forestry Plans shape the future management of our forests and woodland, and enable the delivery of the many benefits they can provide. It is important that plans are reviewed from time to time to ensure that they are up to date and continue to meet the diverse and sometimes competing needs of people, wildlife and industry.

The [draft woodland register](#) and basemap provides a means of assessing the location, extent and type of existing non-Forest Service woodland in the Antrim Forestry Planning Area (FPA), shown in Map 1. For forestry planning purposes, the FPA extends north to include Somerset forest and to the west to include Bann Woods North on the western bank of the Bann river. It has also been extended into part of south Derry to the west to include Moyola Forest, and has been adjusted to coincide with the northern boundaries of Belfast City and Lisburn and Castlereagh City Councils to the south. Forests and woodland are estimated to cover around 19,900 hectares (ha), which is 7.1% of the FPA.

Map 1: Forests and woodland in Antrim Forestry Planning Area (FPA)

[Click map to see larger image](#)



Forests managed by Forest Service within the Antrim FPA are predominantly [coniferous](#), and are in upland areas with limited agricultural potential. Forests are managed to meet a range of sustainable development objectives, and reflect the requirements of the [UK Forestry Standard](#), which is the Government's statement on [sustainable forestry](#).

Details of forests managed by Forest Service are given in [Appendix I](#).



Non-Forest Service forests and woodland mainly consists of a large number of small [broadleaved](#) or mixed woodlands, mostly less than 1 ha in size, scattered throughout the lowland farmed landscape, with a few larger demesne woodlands associated with estates. There is one relatively large coniferous plantation, at Altarichard, which is located in the northeast of the area to the north of Orra More.

The [Ancient Woodland Inventory](#) provides basic information on the composition of woodland which has existed since at least 1830. [Landscape Character Assessments](#) provide further insights into the occurrence of forests and woodland throughout the area at regional and local scales.

There is little additional publicly available information on non-Forest Service forests and woodland, and on woodland owners' management objectives, except where it is managed by public bodies, or the land is under a forestry grant scheme, or, is subject to felling or environmental regulation.

Participation and engagement

Forestry planning involves consulting and engaging with people, including stakeholder organisations and relevant bodies, to ensure that all potential interests are considered, including those of specialist interest groups and the local community. Following the reform of Local Government Districts in 2015, areas of 4 councils (Causeway Coast and Glens Borough Council, Mid and East Antrim Borough Council, Antrim and Newtownabbey Borough Council and Mid Ulster Council) lie within the Antrim Forestry Planning Area.

Scoping consultations are carried out to explore which topics identified in this document are relevant to you as a stakeholder, and to find out if you would like to engage with the forestry planning team in relation to any opportunity or area of interest that you think is relevant to the development of a forestry plan.

Woodland cover and afforestation

Around 6% of forests and woodland in Antrim are included in the [ancient woodland](#) inventory. This includes almost all the land in Northern Ireland which is known to have been continuously wooded since 1830, based on archive evidence, which occurs at two locations, in Glenarm, and downriver of the viaduct in Glen Dun.

Antrim Forestry Planning Area includes a number of important areas of [native woodland](#) that are designated as [ASSI \(Area of Special Scientific Interest\)](#), including Breen Wood, Glenariff, near Waterfoot, Rea's Wood, near Antrim town, and North Woodburn Glen, near Carrickfergus. It also includes wood pasture and parkland ASSIs, with some extraordinary individual ancient and [veteran trees](#), at Glenarm, and at Shanes Castle, near Randalstown.

The establishment of state forests on marginal agricultural land and in demesnes began during the 1920s and 30s, initially from centres at Tardree, Glenarm and Ballycastle, and subsequently taking in the Bann dumps. Afforestation extended onto the Antrim Plateau at Ballypatrick and Parkmore (Glenariff) in the late 1940s, and into the south Antrim hills on land owned by water companies, at Ballyboley and Woodburn in the 1950s. Further phases of upland afforestation took place during the 1960s and 70s at Slieveanorra and Breen in the north Antrim hills, and in Glenwherry in the south, and, during the 1980s, at Cleggan and Shillnavogie, near Glenwherry. Clare, Garry and Craigs forests were established on predominantly lowland bogs in the north of the county during the 1970s.



Forest Plans

Forest plans provide the direction for interventions that will affect the future appearance and composition, or design, of forests, such as the felling of areas ([coupes](#)), the [regeneration](#) of felled areas, and management to retain areas under continuous woodland cover.

Forest design aims to ensure that there is continuity of woodland for timber and wood products, and the delivery of a range of non-timber outcomes, including landscape improvement, water protection, areas for public use, and protection of habitats, including ancient and native woodland. Forest Service seeks greater involvement of people in the revision of its forest plans, which has taken place on a 5 yearly cycle for many decades. The forest management plan for Antrim forests was last reviewed in 2011. [Antrim Management Plan 2011-2016](#). The [Forestry Act 2010](#) placed a duty on Forest Service to promote afforestation and sustainable forestry. Accordingly Forest Service plans will, in future, include references to non-Forest Service forest and woodland.

Achievements

Achievements within the previous Antrim Forestry Planning Area during the period 2011-16 are highlighted in the box below.

- Implementation of forest design plans for 1,140 hectares of forest, including the creation of additional unplanted [water buffers](#) to enhance water quality and the aquatic environment.
- Development of a sculpture trail and walks in Glenarm Forest in partnership with Mid and East Antrim Borough Council.
- Development of new caravan facilities and a play park in Glenariff Forest Park.
- Development of a car park for equestrian events in Ballypatrick Forest, and improvement works to the link from the car park to the forest.
- Forest guides hosted 366 school visits to Antrim forests for over 12,544 children from Key Stage 1 to A level.
- The establishment of a multi-agency approach with the PSNI and NI Water to tackle anti-social behaviour in Tardree and Woodburn forests.
- Grant aiding the creation of nearly 140 hectares of new woodland.
- Producing an average of 62,000 cubic metres of timber each year (equates to about 10 lorry loads of timber every working day) to supply the timber processing industry, creating jobs in rural areas and providing resources to reinvest in forests.
- Regenerating 1026 hectares of Forest Service forest land after [clear fell](#), and planting over 2.2 million trees.
- Commencing the transformation of 12 hectares of planted ancient woodland in Moyola Forest to a [continuous cover](#) forest.
- Removal of 359 hectares of larch infected with *Phytophthora ramorum* in a number of Forest Service forests, and removal of invasive rhododendron in Woodburn Forest, to reduce the spread of the disease.
- Removal of [invasive species](#) from Rea's Wood & Farr's Bay Special Area of Conservation (bordering the North Shores of Lough Neagh) by Conservation Volunteers NI under a licence agreement with Forest Service.
- Establishment of a partnership arrangement with the Glens Red Squirrel Group to protect red squirrels in north Antrim forests, including supplementary feeding and grey squirrel monitoring information, and facilitate educational visits.



Scoping

Forestry planning opportunities are presented under 11 scoping topics which are intended to reflect the various areas of interest to stakeholders, these are as follows:

- Enhancing landscapes
- Protecting rivers and lakes
- Enabling the enjoyment of forests by local people and visitors
- Promoting afforestation and sustainable forestry
- Supplying sustainable wood products
- Regenerating forest land
- Growing trees sustainably
- Minimising the use of pesticides and fertilisers
- Targeting invasive species
- Protecting habitats and species
- Restoring peatland habitats

Appendices

A summary of the composition of Forest Service forests is provided in [Appendix I](#). Details of environmental regulation requirements, designated areas, and historic monuments are provided in [Appendix II](#).



1 - Enhancing Landscapes

“Through the appreciation and analysis of landscape context, forests and woodlands can be designed so that they make a positive contribution to the character of a local area, and in some areas create attractive new landscapes.”

[UK Forestry Standard, 4th Edition \(2017\)](#)

Background

Antrim features a variety of local and regional landscapes of international renown, from the Belfast Hills and the shores of Lough Neagh, to the Antrim Coast and Glens, which is designated as an Area of Outstanding Natural Beauty.

While, in overall terms, forests and woodland forms a relatively small component of the landscape, trees and woodland add greatly to the natural beauty of the coast and glens. Large scale [coniferous](#) plantations are significant features in the rolling uplands of the Antrim plateau, and are important visual elements in the landscape that will change over time.

Small, but often visually prominent, areas of predominantly native [broadleaved](#) woodland occur on steep slopes and escarpments. Elsewhere, towards the west, woodland mainly occurs in former demesnes in a largely agricultural landscape, with an abundance of trees in hedgerows and small copses, and on the fringes of bogs. Smaller scale plantations enhance the landscape of the lower Bann valley and the northeast shores of Lough Neagh

Forests and woodlands, therefore, contribute to the various Antrim landscape characters, and add to the experience of visitors to the area. Foresters acknowledge that the visual impacts of forests are important, and can be enhanced by modifying the design of the forest to remove straight lines or soften hard edges, and, by encouraging more tree planting. Plans for [clearfelling](#) are required to reflect the scale and character of the landscape, and minimise landscape impacts as viewed from busy roads and popular viewpoints.

Felling on larch trees infected with ramorum disease (caused by *Phytophthora ramorum*), in accordance with statutory notices, has had locally significant landscape effects in some forests, including Glenariff, Ballyboley and Woodburn.

Opportunity: Identify where the appearance of forests in the landscape can be improved by modifying the shape of felling boundaries, and carefully designed regeneration of felled areas.

Opportunity: Consider the potential for softening ‘hard’ forest edges by encouraging the afforestation of neighbouring agricultural land, subject to the landowners’ long-term intentions.

Activity: Undertake visual assessments of Forest Service forests from key viewpoints in the surrounding countryside, in order to identify the potential to influence the landscape effects of forest management decisions, focusing on planned felling.

Activity: Apply [UK Forestry Standard](#) requirements and forest landscape design guidelines, using Geographic Information Systems (GIS) tools to undertake assessments and present options.



Outcomes	Benefits
<ul style="list-style-type: none">- Increased potential to demonstrate landscape improvements using the regeneration and design plans- Illustrate forests' positive contribution to tourism in Antrim- Stakeholders can inform the planning process and contribute to forest design planning	<ul style="list-style-type: none">- Attractive forest landscape views from a number of scenic routes in the Antrim Hills and Bann Valley

Click the image for a larger version



2 - Protecting Rivers and Lakes

“Forests and woodlands have a close relationship with our water resources, and forest management and water quality are closely linked. Sustainable forest management is essential to ensure the supply of good-quality fresh water, provide protection from natural hazards such as flooding or soil erosion and to protect the needs of aquatic species.”

[UK Forestry Standard, 4th Edition \(2017\)](#)

Background

A number of Forest Service forests in Antrim FPA lie within the catchments of important angling rivers, including the River Bush, River Maine, Glenarm River, and the Woodburn River. The Bush and the Maine, along with the Glendun, which has a large percentage of [coniferous](#) forest in its headwaters, hold significant salmonid populations and are being monitored by DAERA and AFBI as part of a program to improve success rates of North Atlantic salmon. Rivers and lakes in the DAERA Public Angling estate in forested catchments include the Maine, Altnahinch, Killylane, and Woodburn.

Monitoring undertaken by NIEA as part of the 2nd cycle of the [Water Framework Directive](#) has indicated that the Glendun River is at risk from acidification. As trees are able to capture more acidifying pollutants from the atmosphere than shorter vegetation, [afforestation](#) proposals in the catchment are subject to additional controls.

The main forest design activity to protect water in these upland forests has been the creation of [buffer](#) areas of open ground between forestry land and watercourses and waterbodies. However, as the benefits of creating native [broadleaved](#) woodland to adjacent aquatic habitats have also become more widely recognised, the focus of forestry planning has shifted towards establishing [riparian woodland](#), where appropriate. An action to create riparian woodland in Forest Service forests is included in the cross-Departmental strategy [‘Sustainable Water - A Long-Term Water Strategy for Northern Ireland’ \(2016\)](#).

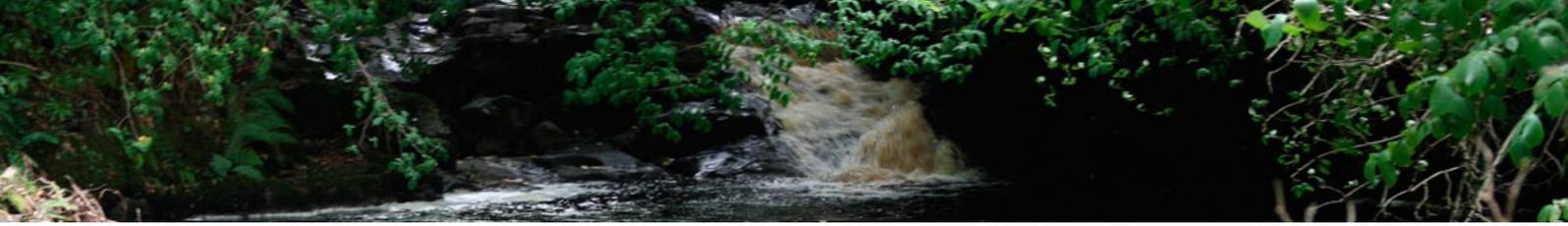
[Afforestation schemes](#), including the Forest Expansion Scheme, and the ‘Establishment of Native Woodland under 5 ha’ option of the Environmental Farming Scheme, provide opportunities to provide additional protection of water through the creation of riparian woodland.

Recent research commissioned by Forest Service and prepared by Forest Research ([Opportunity mapping for woodland creation to reduce flood risk](#)) demonstrates how afforestation can also contribute to flood alleviation by identifying priority areas for woodland creation to benefit flood risk management and mitigation.

Forest planning and design can also avail of newly available datasets which use topographical and rainfall information to highlight areas most at risk of contributing to erosion and diffuse pollution. The mapping of these risk areas enables better positioning of water protection measures such as riparian woodland or other mechanisms to intercept and trap pollutants, with the goal of improving water quality and the aquatic environment.

Opportunity: Identify the potential to increase the extent of riparian woodland by colonisation or planting.

Opportunity: Use new sources of information to review the internal design of forests.



Activity: Identify **water buffer areas** that have become colonised by native woodland, and where riparian woodland establishment by planting is appropriate.

Activity: Use data to improve forestry planning, including the revision of planned felling coupes, forest design plans, and **forest regeneration** plans.

Outcomes	Benefits
<ul style="list-style-type: none">- Assurance that risk to the ecological condition of features due to forest operations will be appropriately managed- Establishment of new native riparian woodland contributing to the NI Long-Term Water Strategy target	<ul style="list-style-type: none">- Significant contribution to biodiversity, and to angling, arising from the promotion and practice of sustainable forestry- Long term protection of water quality resulting from increased extent of riparian woodland



3 - Enabling Enjoyment of Forests by Local People and Visitors

“Access to woodlands is a public benefit that can improve people’s health and well-being.”

“Woodland visits help build an understanding and appreciation of the forest environment. Access to woodlands can be particularly beneficial for people from urban areas, people from disadvantaged social backgrounds, and people with disabilities....”

[UK Forestry Standard, 4th Edition \(2017\)](#)

Background

The [Forestry Act \(Northern Ireland\) 2010](#) promotes and encourages the enjoyment and recreational use of Forest Service land by the public, including a right of pedestrian access, and promotes the social benefits of other woodland. Partnership arrangements between Forest Service and Councils have been developed in keeping with the implementation of the [‘Forest Service Recreation and Social Use of Forests strategy’](#).

Outdoor recreation facilities in Forest Service forests have been developed in recent years, and include, in addition to walking trails, car parking for equestrian use in Ballypatrick Forest, and new, high specification, caravanning facilities in Glenariff Forest Park. Extensive use is made of Forest Service forests and woodland for walking close to towns, including Ballycastle Forest, Mount Sandel Wood and Somerset Forest, beside Coleraine, Gortgole Wood and Portglenone Forest, Randalstown Forest, Woodburn Forest, near Carrickfergus and Rea’s Wood, beside Antrim town.

Elsewhere, in recent years Causeway Coast and Glens Borough Council have liaised with a private landowner to promote access at Cregagh Wood, near Cushendun, in conjunction with the Glens Red Squirrel Group, and undertaken management of woodland beside the River Bann, at Drumaheglis, near Ballymoney. Woodland walks through Oakfield Glen and Bashfordsland Wood, at Carrickfergus, Diamond Jubilee Wood, at Whitehead, and Carnfunnock Country Park, near Ballygalley, are maintained by Mid and East Antrim Borough Council, around Antrim Castle Gardens, by Antrim and Newtownabbey Borough Council, and, at Carnmoney Hill, near Glengormley, and at Monkstown Wood by the Woodland Trust.

Opportunity: Continue to discuss options for maintaining the existing provision of facilities and improving access to forests with Councils and other partners, and potential partners.

Activity: Liaise with Councils to increase the recreational use of forests.

Activity: Liaise with public bodies and neighbours to discourage activities presenting a risk to pedestrian users of forests.

Outcomes	Benefits
<ul style="list-style-type: none"> - Local people are able to make greater use of forests in their area - Promoting recreational use of forests - Delivering sustainable development in partnership with others 	<ul style="list-style-type: none"> - Health and well-being - Development of local businesses



4 - Promoting Afforestation and Sustainable Forestry

“The Department’s General Duty of promoting afforestation and sustainable forestry refers to all forests in Northern Ireland, not only the Department’s forest land. The Department recognises the valuable contribution that forestry makes in achieving its vision of a thriving, sustainable rural community. Through the Forest Service, it aims to ensure the sustainability of forests as an invaluable heritage, expansion of tree cover, [and] management of forests in a way that increases biodiversity, enhances the landscape and assists in improving water quality.”

[A Delivery Plan for the Implementation of the Forestry Act \(Northern Ireland\) 2010](#)

Background

NI Public Opinion of Forestry Surveys, conducted regularly since 2005, have consistently found that 96% of respondents believed that forestry was worth supporting, to provide places for wildlife to live and for recreation. 79% of respondents said that they would like to see more woodland locally.

[Public Opinion of forestry, Northern Ireland: 2014 survey](#)

Promoting forest expansion is an integral part of Government policy and action to mitigate both climate change and flood risk, in addition to the many other benefits forests and woodland provide for people. Operation of forestry grant schemes (under the Rural Development Programme, Northern Ireland) and [felling regulations](#) (under the [Forestry Act](#)) provide opportunities for Forest Service to promote the delivery of [ecosystem services](#) from new and regenerated woodland, through the use of appropriate forest design and establishment techniques.

[Indicative map for woodland creation](#)

Information published on the DAERA website shows the extent of land potentially suitable for afforestation, and where afforestation can be of benefit in terms of flood risk mitigation.

[Opportunity mapping for woodland creation to reduce flood risk in Northern Ireland](#)

Forest planning will identify opportunities for woodland expansion to deliver benefits that are complementary to Forest Service forests by contributing to the [local landscape character](#), and increasing connectivity between areas of neighbouring non-Forest Service woodland in the landscape. For the purposes of forest planning, Northern Ireland is divided into 8 Forestry Planning Areas, each of which incorporates a Forest Service forest planning unit.

The [draft woodland register](#) and basemap does not, however, provide information on the potential contribution of this woodland to community development, and its capacity to deliver ecosystem services other than in terms of its occurrence close to water.

Through the capture of relevant data from casual inspection of woodland adjacent to Forest Service forests, the review of management plans for these forests can make use of estimates of actual and potential use of this woodland, and of its additional contribution to sustainable forestry.

Opportunity: Identify potential for promoting woodland expansion adjacent to Forest Service forests, where appropriate.

Opportunity: Review the extent of non-Forest Service woodland in the Antrim Forestry Planning Area, and the potential risks to its contribution to sustainable forestry.

Activity: Assess provision of ecosystem services by non-Forest Service woodland adjacent to forests.



Outcomes	Benefits
<ul style="list-style-type: none">- Landscape improvement through tree planting- Baseline information on woodland management	<ul style="list-style-type: none">- Woodland ecosystem services, benefitting people, the environment, and the economy- Landscape scale woodland management



5 - Supplying Sustainable Wood Products

“Our forests support development of the Northern Ireland economy by supplying wood for industrial use. We sold 414,000 cubic metres of logs for £9.95 million, and we estimate that £24 million of value was added by industry in harvesting, timber haulage, and manufacture for construction, fencing, pallet and packaging, and energy. We obtained more of our timber supplies from tree thinning operations as part of our strategy to extend the life of plantations and reduce the impact of forestry operations on the environment.”

[Forest Service Annual Report 2015 - 2016](#)

Background

Timber harvesting operations are managed to avoid adverse environmental impacts, particularly preventing movement of sediment and pollutants into watercourses. Since 2012 Antrim forests have produced just over 62,000 cubic metres of timber per year, mainly from [clearfelling](#). To provide assurance, Forest Service forests and management are subject to a periodic assessment and annual audits of compliance by an independent certification body to ensure they meet the requirements of both the Forest Stewardship Council® (FSC)® (Licence code: FSC-C084232), and, the Programme for Endorsement of Forest Certification (PEFC) (Licence code: PEFC/16-40-1924), each of which employs the [UK Woodland Assurance Standard](#). As a result of FSC® and PEFC forest management and ensuing ‘chain of custody’ certification components, wood products derived from Forest Service forests can be marketed by processors using the logos of the FSC® and PEFC, signifying they have come out of responsibly managed forests. Some non-Forest Service forests and woodland holdings in Antrim FPA are also certified and produced timber that can be marketed with FSC® and PEFC logos.

Over time, forest plans will seek to reduce the proportion of the total amount of timber produced by clearfelling, and, subject to risk of [windthrow](#), to increase the amounts produced both by thinning of plantations that will eventually, be clearfelled, and by using [low impact silvicultural systems](#).

Opportunity: Review the timing and boundaries of planned felling, to complement landscape design and enhance water protection, using innovative Geographic Information Systems (GIS) tools and datasets.

Opportunity: To optimise the supply of timber from thinning and use of low impact silvicultural systems, including [continuous cover forestry](#).

Activity: Make use of advanced GIS tools and datasets to improve the design of felling coupes.

Activity: Optimise thinning in Antrim forests, and enhance planning capability.

Activity: Develop and apply a rationale for identifying further areas where the use of low impact silvicultural systems is appropriate.

Outcomes	Benefits
<ul style="list-style-type: none"> - Maintain supply of certified timber - Improved knowledge of future timber availability - Greater resilience of timber availability through the use of alternative silvicultural systems 	<ul style="list-style-type: none"> - Sustainable economic activity in the rural landscape - Industrial output of home produced wood products to a variety of markets, including construction, agriculture, energy, and domestic heating

Supplying sustainable wood products: Opportunity to review harvesting plans

The review of the Antrim area forest plan provides the opportunity to review how timber is harvested from forest areas.

We have the opportunity to review:

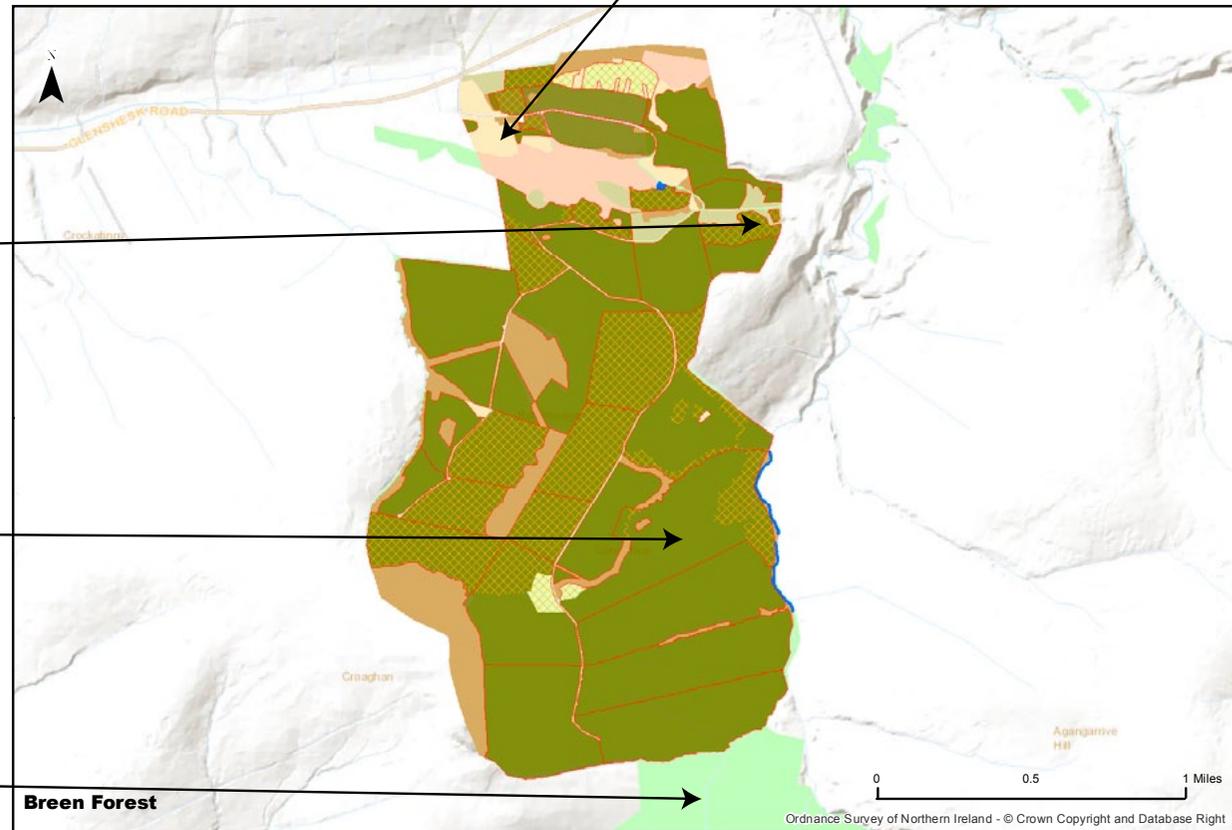
- 1 - Clearfell: wood is produced using a clearfelling silvicultural system, where all trees in an area are harvested within the same period.
- 2 - LISS: wood is produced using low impact systems under which a proportion of trees are removed singly or in small groups, and gaps are planted or allowed to regenerate naturally.
- 3 - Thinning: wood is produced by periodically removing a proportion of trees from 18-20 years of age until clearfelling takes place.
- 4 - Extended rotations: clearfelling is delayed beyond normal felling age.

Low Impact Silvicultural Systems (LISS)
Currently 12.5 ha of Breen Forest is managed using low impact methods, including the forest area around the main car park. Further opportunities to extend use of LISS will be explored.

Thinning Areas. 141 ha of Breen Forest clearfell areas are planned to be thinned. Opportunities to optimise the supply of timber from thinning will be investigated during the plan review.

Clearfell Areas. Currently within Breen Forest 469 ha is managed by clearfelling. The boundaries and sizes of the areas, called coupes, which determine clearfelling areas, will be reviewed. A wide range of economic, environmental, landscape and social factors will be considered in this review and will involve use of new datasets supplied by stakeholders.

Extended rotations. 9 ha of Breen Forest area is planned for extended rotation. The potential to extend this area will be reviewed particularly where it is of potential benefit to priority species such as red squirrels which are present in Breen.



- | | | | |
|--|--|---|---|
| Areas managed by LISS | Natural reserve | Open ground | Areas awaiting replant |
| Areas managed by clearfell | Extended rotation | Thinning areas | Water |

6 - Regenerating Forest Land

“Forest regeneration is the act of renewing tree cover by establishing young trees naturally or artificially - generally, promptly after the previous stand or forest has been removed. The method, species, and density are chosen to meet the goal of the landowner.”

[Land use, Land-Use and Forestry Fact Sheet 4.12. Intergovernmental Panel on Climate Change](#)

Background

Regeneration of forest land after felling (or, occasionally, destruction by fire) is an opportunity to improve the design of a forest to meet longer term objectives, including enhancing the landscape, protecting water, and, by using a wider range of trees species, improving wildlife habitats and increasing the resilience of the forest. Felled areas may be replanted, or allowed to regenerate naturally from seed, or, used to introduce more open ground into a forest. In some circumstances wood production can be increased by using improved planting material, for example, grown from seed harvested in seed orchards.

The development and improvement of forest design and regeneration plans is a significant forest management activity, involving extensive engagement with Governmental bodies, organisations, local people, and other stakeholders. Forest design plans have resulted in the creation of additional [water buffer areas](#), some of which are suitable for establishing new [native woodland](#). Forestry planning has also been undertaken in relation to non-Forest Service forests and woodland in the FPA in conjunction with the regeneration of areas subject to [felling regulation](#).

Management of forests under some [low impact silvicultural systems \(LISS\)](#) involves making use of natural regeneration, where it occurs, to meet regeneration requirements, where it occurs, supplemented by planting as necessary.

Opportunity: Review and revise forest design and forest regeneration plans, to introduce native [broadleaved trees](#) and open ground, and favour the use of a wider range of [conifer species](#) for regeneration, where appropriate.

Opportunity: Revise felling and regeneration plans to increase age, species and structural diversity in forests.

Opportunity: Specify the use of more productive Sitka spruce planting material in regeneration plans, where site conditions are suitable.

Activity: Assess the suitability of current and planned water buffer areas for the establishment of new native woodland.

Activity: Identify areas suitable for use of alternative conifer species, including Norway spruce, Douglas fir and western red cedar.

Activity: Identify areas where wildlife habitat can be enhanced by planting a wider range of tree species.

Activity: Identify areas managed as LISS where supplementary underplanting is appropriate.



Outcomes	Benefits
<ul style="list-style-type: none">- Regeneration plans identifying the establishment of native woodland adjacent to watercourses, and the appropriate use of alternative conifer species	<ul style="list-style-type: none">- Forests which deliver better ecosystem services and have more natural capital- Forests that are more resilient to the effects of disease, climate change and other pressures

7 - Growing Trees Sustainably

“The essential consideration for the landowner or manager is to ensure that the forest thrives and is not degraded. This includes protecting young trees to make sure they become successfully established, and protecting the health of forests and woodlands, for example by ensuring they have the necessary resilience to cope with emerging threats and changing conditions – in particular climate change. It also involves maintaining levels of fertility and site potential for future rotations.”

[UK Forestry Standard, 4th Edition \(2017\)](#)

Background

Growing trees sustainably involves monitoring the health and vitality of the forest, and responding appropriately to threats. Antrim forests are vulnerable to a similar range of threats occurring elsewhere in Northern Ireland, including harm to forest users and the environment arising from criminal or anti-social behaviour, and the effects of fire, pests and diseases, wind and storm damage, and loss of soil fertility. Areas recently planted with native and other **broadleaved** trees, including new **riparian woodland**, are particularly susceptible to damage by deer and grey squirrels, and from uncontrolled livestock grazing. Deer are also able to hinder or prevent establishment of woodland by colonisation or natural regeneration. Additionally, plant diseases can also impact forest growth and development, for example, a number of non-Forest Service woodlands have been affected by ash dieback disease.

While the risk of damage from many of these threats is managed by operational measures and contingency planning, continuous monitoring and liaising with neighbours, partners and stakeholders is essential.

Opportunity: Liaise with neighbours and statutory bodies in relation to controlling damage to woodlands, and preventing deer poaching and other wildlife crime.

Opportunity: Monitor the growth of trees in areas regenerated after felling, and develop plans to maintain fertility, using targeted fertiliser applications where necessary.

Activity: Collate and analyse monitoring information, including assessments of tree growth and nutrition.

Activity: Identify areas where fertiliser applications will be required to maintain tree growth.

Outcomes	Benefits
<ul style="list-style-type: none">– Updated monitoring and contingency plans– Design plans include appropriate buffer zones adjacent to watercourses and lakes to permit fertiliser application where necessary	<ul style="list-style-type: none">– Healthy, safe forests– Protected natural environments

8 - Minimising the use of Pesticides and Fertilisers

“The use of artificial pesticides and fertilisers is generally a last resort in practising sustainable forest management...Pesticides and fertilisers are expensive, and should only be deployed in a reactive way to protect trees when a problem has been identified or is highly likely. Their use on special sites such as ancient woodland is particularly discouraged.”

[UK Forestry Standard, 4th Edition \(2017\)](#)

Background

Pesticide use in Forest Service forests is highly restricted as a result of a combination of statutory regulation and the implementation of a Forest Service minimisation strategy. Under this strategy, non-chemical control options are considered, and used, unless shown to be impractical, ineffective, excessively costly, or likely to carry the risk of causing more harm to people and the environment. The main remaining area of use of chemical control is as a last resort to protect trees replanted after felling from insect damage caused by the pine weevil (*Hylobius abietis*). The pyrethroid, cypermethrin, is currently used to protect trees from pine weevil. A neonicotinoid substitute, acetamiprid, is to be used from 2018. (In the formulation that will be used in forestry, acetamiprid is not classified as toxic to bees.)

Environmental monitoring carried out by NIEA in recent years has identified both detections of pesticides and biological effects. Although forestry may not be the only source of pesticides, it cannot be ruled out conclusively, given the targeted use in forestry of some of the pesticides detected.

Fertilisers have been routinely used to enable woodland establishment and promote tree growth in upland forests since the early 1960s, and, until around 2000, aerial fertiliser application to forests had taken place on an annual basis. Fertiliser use followed prescriptions for different tree species and site conditions that had been developed over many decades of research and monitoring. Since 2000, increasing areas of forest, that had been established and maintained using fertiliser, have been felled. There are strong indications that a proportion of regenerated areas are becoming deficient in nutrients and may again require fertiliser to maintain growth.

Opportunity: To contribute to the minimisation of pesticide use by planning the sequencing of felling years and increasing the area of forest managed under low impact silvicultural systems.

Opportunity: To maximise the efficiency of fertiliser use in terms of uptake, and growth.

Activity: Environmental monitoring of forested catchments, in conjunction with NIEA.

Activity: Identify thresholds for fertiliser applications based on balancing economic returns and potential environmental effects.

Outcomes	Benefits
<ul style="list-style-type: none">– Pesticide use is minimised to the extent that residues are significantly below environmental monitoring thresholds– Fertiliser applications will take place without affecting water	<ul style="list-style-type: none">– Economic activity in forests contributing to the health and well-being of local people

9 - Targeting Invasive Species

“Here, as elsewhere in the world, invasive species are increasingly a serious threat to biodiversity and the benefits that healthy ecosystems provide to us... They are a risk to our unique flora and fauna, our economic interests such as forestry, fishing, and farming, our health, and our recreational interests.”

[An invasive species strategy for Northern Ireland \(2013\)](#)

Background

A number of invasive, non-native plant species occur in most forests, with the potential to affect access, biodiversity, regeneration of forests, and tree growth. The most widely occurring invasive plant species are rhododendron and laurel. Both are susceptible to *Phytophthora ramorum* (the cause of ‘Ramorum disease’, also known elsewhere as ‘sudden oak death’) and can act as hosts for the disease in a woodland and increase the amount of inoculum in an area. Fewer invasive non-native mammal species occur in forests, although the impact on biodiversity and tree health of the grey squirrel and introduced deer species can be locally significant.

Some invasive species are subject to regulation, under the [EU Invasive Alien Species Regulation \(Regulation No 1143/2014\)](#) and the [Wildlife and Natural Environment Act \(Northern Ireland\) 2011](#). Actions targeted against invasive species by public bodies are co-ordinated under the [Invasive Species Strategy for Northern Ireland](#). Effective action against invasive non-native species is generally very costly and is not undertaken without good justification, for instance removal from protected habitats and [riparian areas](#).

Opportunity: Prioritise areas where control of rhododendron and laurel is required.

Opportunity: Prioritise areas where control of colonising woodland is required in protected habitats and riparian areas in Forest Service forests.

Activity: Collate and analyse data on the occurrence of invasive plant species in forests.

Activity: Assess extent of colonisation of protected habitats and water buffer areas by Sitka spruce and other [conifers](#).

Outcomes	Benefits
<ul style="list-style-type: none">– Decreasing area of forest land affected by invasive plant species– Reduced threats to biodiversity and tree health	<ul style="list-style-type: none">– Forests are more attractive– Better access for angling



10 - Protecting Habitats and Species

“Northern Ireland’s biodiversity plays a significant role within its economy. A healthy, properly-functioning natural environment is the foundation of sustained economic growth, prosperous communities and personal well-being.”

[Valuing Nature A Biodiversity Strategy for Northern Ireland to 2020.](#)

Background

A quarter of the 76,000 ha of land managed by the Forest Service is designated for nature conservation, as SAC, SPA, ASSI or NNR. A large proportion of this designated land, which monitored by NIEA, is comprised of two SPAs, for hen harrier (Slieve Beabh-Mullaghfad-Lisnaskea SPA) and hen harrier and merlin respectively (Antrim Hills SPA).

<https://www.daera-ni.gov.uk/topics/biodiversity-land-and-landscapes/protected-areas>

Designated areas in and adjacent to Antrim forests are listed in [Appendix I](#). As a competent authority, Forest Service is required to undertake assessments of the potential impact of forestry on areas designated under the EU Habitats and Birds Directives as either SAC or SPA, including Breen Wood, Rea’s Wood and Farr’s Bay SAC, Slieveanorra and Croaghan SAC, and Antrim Hills Hen Harrier and Merlin SPA.

Forest plans identify areas in forests that correspond to [priority habitats](#) described in the [EU Habitats Directive](#), in addition to designated areas. These include [native woodland](#) (including semi-natural and ancient semi-natural woodland), parkland, species-rich grassland, bog and heathland. No critical threats to remnant [ancient woodland](#) features were identified following a survey of ancient woodland sites in Forest Service forests conducted in 2013-14. However, parkland and open habitats with adjacent forest and woodland are known to be susceptible to encroachment. Forest design plans can also identify areas as natural reserves, areas for native woodland expansion and open habitat restoration, and where areas should be maintained as open space, including internal forest edges.

Forests provide habitats for a number of rare and protected plants, invertebrates, birds and mammals, and support populations of wild deer, which are managed to prevent damage to susceptible trees. Biodiversity of forests is also enhanced through management of deadwood habitat, protecting ancient woodland remnant features, [veteran trees](#), and other features of high biodiversity value, increasingly favouring the use of extended [rotations](#), and of [low impact silvicultural systems](#) to maintain [continuous forest cover](#).

Antrim forests in particular are significant refuges for the red squirrel, and raptors, including hen harrier and merlin. While the increasing use of low impact silvicultural systems in [conifer](#) stands may promote biodiversity general, it is acknowledged that a number of species, but particularly hen harrier, may benefit more from a mosaic of age classes resulting from managed [clearfelling](#). Forest rides are particularly important for nesting and foraging of forest edge dwelling raptor species, including buzzard, red kite, goshawk, kestrel and merlin, and raven.

While forest operations are planned to avoid adverse effects on rare and vulnerable species, it is also important that people wishing to use forests for recreational purposes are aware of the particular needs of protected species, particularly of breeding raptors.

Opportunity: Complete Habitats Regulations Assessments (HRAs) of revised forest plans in respect of the Antrim Hills Special Protection Area, and SACs as appropriate.

Opportunity: Identify areas of open habitat where intervention is necessary to address potential loss of biodiversity, and maintain ecological connectivity.



Activity: Review potential effects of forest operations specified in forest plans.

Activity: Undertake assessments of the risk to open and parkland habitats from colonisation by trees and other threats to biodiversity.

Outcomes	Benefits
- Contribution of forests to NI biodiversity is maintained or increased	- Opportunities for watching birds and wildlife in forests



11 - Restoring Peatland Habitats

“Peatland covers 12% of the land area of Northern Ireland... It is a resource which is of enormous importance to the stability and general well-being of our environment, creating distinctive upland and lowland landscapes, conserving biodiversity, and affecting river catchment hydrology. Peatland is also valuable as an archival record of climatic and vegetational history and archaeological remains. Globally, peatland acts as a massive carbon store with implications for the ‘greenhouse effect’ ”.

[Conserving Peatland In Northern Ireland: A Statement of Policy \(1993\)](#)

Background:

Internationally, peatland habitats are threatened from human activities and climate change and are therefore considered areas of high conservation importance. Historically, in Northern Ireland, significant areas of land with a peat depth of more than 50cm was acquired because it was considered to be suitable for **afforestation**, using Sitka spruce and lodgepole pine, without compromising local agricultural production. However, relatively high initial inputs in terms of cultivation, drainage and fertiliser were needed to establish plantations and to maintain tree growth. This took place over large areas of Ireland and Scotland, and to a lesser extent, in Wales and northern England. Similar activity took place in other European countries, particularly in northern Sweden and in Finland. However, growing trees on land which requires repeated inputs of fertiliser is no longer considered to be a compatible with **sustainable forestry**, and greater emphasis is placed on selecting species and silvicultural systems that do not require continuing inputs of fertilisers. This limits options for productive forestry on peatlands, particularly where the capacity to retain applied nutrients is low.

Peatland restoration avoids the need to plan for drainage and continuing fertiliser applications, and re-establishes a sink, and long-term store, for carbon. It also enables the recovery of biodiversity associated with bog habitats, and for previously afforested land to provide additional ecosystem services, including landscape improvement and flood risk mitigation. However, it also requires inputs in terms of treatment of felled areas, including blocking of drains, and would result in a reduction in the timber production potential of forests, and, possibly, limit recreation opportunities. Therefore, it is critical that potential restoration sites are identified and carefully considered.

Antrim forests include significant areas with soil described as peat of more than 50 cm. Areas potentially suitable for restoration are located in most forests except Woodburn, Ballyboley, Glenarm, Tardree, Somerset, and Bann Woods.

Opportunity: Identify and prioritise areas of afforested peat for restoration in Antrim forests.

Activity: Develop a process for identifying and mapping potential candidate restoration areas based on peat depth, slope and topography.

Outcomes	Benefits
<ul style="list-style-type: none"> - Reduction in area of regeneration of upland forests and their timber production potential - Change in upland forested landscapes - Reconnection of remnant patches of isolated peatland 	<ul style="list-style-type: none"> - Flood risk mitigation and carbon storage - Reduced carbon footprint

Appendix I

Composition of Forest Service forests

Table 1

Area and Composition of Forest Service forests in Antrim Forestry Planning Area by Forest Landscape Unit

1.1 Lower Bann Forest Landscape Unit

Forests	Area (Ha)	Composition (%)			
		Conifer	Broad-leaved	Mixed	Open ground + water
Portglenone	413	53	9	8	31
Bann Woods South	101	67	21	8	4
Bann Woods North	34	54	42	2	1
Somerset	152	23	33	36	8
Moyola	47	88	11	0	1
Landscape Unit	747	51	17	13	19

1.2 Garry Forest Landscape Unit

Forests	Area (Ha)	Composition (%)			
		Conifer	Broad-leaved	Mixed	Open ground + water
Craigs	265	85	3	0	13
Garry	557	52	3	2	44
Clare	1053	89	2	1	8
Landscape Unit	1875	78	2	1	19

1.3 Antrim Hills and Glens Forest Landscape Unit

Forests	Area (Ha)	Composition (%)			
		Conifer	Broad-leaved	Mixed	Open ground + water
Ballycastle	332	82	8	1	9
Ballypatrick	1468	81	3	1	16
Slieveanorra	3397	64	1	0	34
Glenariff	1178	72	4	1	23
Cleggan	1228	87	1	0	12
Glenarm	179	56	34	5	5
Cappanagh	540	77	3	0	20
Ballyboley	689	88	4	0	9
Breen	600	82	6	1	11
Landscape Unit	9611	75	3	1	22

1.4 Tardree Forest Landscape Unit

Forests	Area (Ha)	Composition (%)			
		Conifer	Broad-leaved	Mixed	Open ground + water
Muckamore	52	26	54	17	22
Randalstown	176	64	25	1	10
Tardree	379	85	8	1	6
Woodburn	836	80	11	3	5
Landscape Unit	1444	77	14	3	6

Appendix II

Environmental regulation, designated areas, and historic monuments

1. Environmental Regulation

Afforestation, deforestation, forest road works and forest quarry works are subject to regulation under the [Environmental Impact Assessment \(Forestry\) Regulations \(Northern Ireland\) 2006](#), as amended under the [Environmental Impact Assessment \(Forestry\) \(Amendment\) Regulations \(Northern Ireland\) 2017](#). Thresholds beyond which projects must be screened are determined by the type of project and existence of a designation, as listed in section 4.2.

In areas designated as [Special Area of Conservation \(SAC\)](#) or [Special Protection Area \(SPA\)](#), management plans and, where necessary, operational plans in connection with forestry or recreational activities, are subject to regulation under the [Conservation \(Natural Habitats etc.\) \(Northern Ireland\) Regulations](#) (as amended), commonly referred to as the Habitats Regulations. Operational plans for forest management activities in [Areas of Special Scientific Interest \(ASSI\)](#) are subject to regulation under the [Environment Order \(Northern Ireland\)](#).

[National Nature Reserves \(NNR\)](#) are declared under the [Nature Conservation and Amenity Lands Order \(NI\) 1985](#), and are managed in accordance with a management plan.

2. Designated areas

Forestry land is designated under the [Habitats Regulations](#), the [Environment Order](#), and the [Nature Conservation and Amenity Lands Order \(NI\) 1985](#).

Table 1

Designated areas adjacent to and including Forest Service forest land

Designated site or area	Designation type	Forest adjacent or included within
Causeway Coast	AONB	Clare
Antrim Coast and Glens	AONB	Ballycastle Ballypatrick Breen Slieveanorra Glenariff Cleggan Glenarm Cappanagh Ballyboley
Antrim Hills	SPA	Ballyboley Ballypatrick Breen Capanagh Cleggan Glenariff Slieveanorra
Breen Wood	SAC/ASSI/NR	Breen
Breen Oakwood	NR	Breen
Garry Bog	RAMSAR/SAC/ASSI	Garry
Garry Bog Part II	ASSI	Garry
Garron Plateau	RAMSAR/SAC/ASSI	Cleggan Glenariff

Lough Neagh & Lough Beg	RAMSAR/SPA	Muckamore Randalstown
Rea's Wood & Farr's Bay	SAC	Muckamore Randalstown
Lough Neagh	ASSI	Muckamore Randalstown
Lough Neagh Islands	NR	Muckamore (adjacent) Randalstown (adjacent)
Randalstown Forest Lough Neagh	NR	Randalstown
Rea's Wood Forest Lough Neagh	NR	Muckamore
Ballymacombs More	ASSI	Portglenone
Carey Valley	ASSI	Ballypatrick
Copeland Reservoir	ASSI	Woodburn
Glenariff Glen	ASSI	Glenariff
Glenarm Woods	ASSI	Glenarm
Glenarm Woods Part 2	ASSI	Glenarm
Moneystaghan Bog	ASSI	Portglenone
North Woodburn Reservoir	ASSI	Woodburn
Shane's Castle	ASSI	Randalstown
Slieveanorra and Croaghan	ASSI	Breen Slieveanorra
South Woodburn	ASSI	Woodburn
Tardree Quarry	ASSI	Tardree
Tully Hill	ASSI	Bann Woods South
Glenariff Waterfalls	NR	Glenariff
Slieveanorra Forest	NR	Slieveanorra

Non-Forest Service woodland is a significant feature of the Causeway Coast and Antrim Coast and Glens AONBs, and occurs widely both in Lough Neagh and Lough Beg SPA and Antrim Hills SPA. It also forms a significant component of Breen Wood SAC and Rea's Wood and Farr's Bay SAC.

In addition, non-Forest Service woodland (and parkland) is a key feature of a number of ASSIs, including Lough Neagh, Breen Wood, Shane's Castle, Fair Head and Murlough Bay, Glenarm Woods, Glenariff, Glynn Woods, Cleggan Valley, Galboly, Glarryford, Straidkilly Wood, Tow River Wood, North Woodburn Glen, and Glen Burn. It is also a significant feature in a number of other ASSIs, including Lough Beg, Black Burn, Moneystaghan Bog, Tully Hill, Glenballyemon River, and Carey Valley.

Mid Ulster District Council, and Causeway Coast and Glens, Antrim and Newtownabbey, Mid and East Antrim Borough Councils have designated a number of [Sites of Local Nature Conservation Importance \(SLNCI\)](#) that include woodland features, some of which are associated with ASSIs. A few SLNCIs, including Colebreene Wood, Knockantern, Glenariff Waterfalls, and Woodland West of Black Hill include a significant component of Forest Service forest (Bann Woods North, Somerset, Glenariff and Woodburn respectively).

Table 2

State-care, scheduled and non-scheduled historic sites and monuments located in or close to forest boundary (within 50m)

Forest	Townland	Type	Protection	Location
Somerset	Mount Sandel	Multi-Period Site	State Care	Close to forest
Ballypatrick	Ballyvennaght	Megalithic Tomb	Scheduled	Close to forest
Ballypatrick	Glenmakeeran	Megalithic Tomb	Scheduled	In forest
Breen	Breen	Standing Stone	Scheduled	In forest
Randalstown	Shanes Castle Demense	Rath	Scheduled	Close to forest
Slieveanorra	Beaghs	Mound	Scheduled	In forest
Somerset	Loughan Island	Fortification	Scheduled	In forest
Somerset	Loughan Island	Mound	Scheduled	In forest
Somerset	Mount Sandel	Settlement Site	Scheduled	Close to forest
Somerset	Mount Sandel	Ford	Scheduled	Close to forest
Tardree	Tardree	Earthwork	Scheduled	Close to forest
Ballyboley	Ballyboley	AP Site*	Non-scheduled	In forest
Ballyboley	Ballyboley	Cairn	Non-scheduled	In forest
Ballyboley	Ballyboley	Settlement Site	Non-scheduled	In forest
Ballyboley	Hightown	Souterrain	Non-scheduled	Close to forest
Ballyboley	Killylane	Souterrain Possible	Non-scheduled	Close to forest
Ballycastle	Ballydurnian	Graveyard	Non-scheduled	Close to forest
Ballycastle	Ballyveely	AP Site*	Non-scheduled	In forest
Ballycastle	Ballyveely	Megalithic Tomb	Non-scheduled	In forest
Ballycastle	Ballyveely	Standing Stone	Non-scheduled	In forest
Ballycastle	Broom-Beg	AP Site*	Non-scheduled	In forest
Ballycastle	Broom-Beg	AP Site*	Non-scheduled	Close to forest
Ballycastle	Broom-Beg	AP Site*	Non-scheduled	Close to forest
Ballycastle	Broughmore	Souterrain	Non-scheduled	Close to forest
Ballycastle	Drumeeny	Souterrain	Non-scheduled	Close to forest
Ballycastle	Glenshesk	Battle Site	Non-scheduled	In forest
Ballycastle	Kilcreg	AP Site*	Non-scheduled	Close to forest
Ballycastle	Town Parks Ballycastle	Well	Non-scheduled	Close to forest
Ballypatrick	Ballyberidagh South	Cist Burial	Non-scheduled	In forest
Ballypatrick	Ballypatrick	Cairn	Non-scheduled	In forest
Ballypatrick	Ballypatrick	Findspot	Non-scheduled	In forest
Ballypatrick	Ballypatrick	Souterrain	Non-scheduled	In forest
Ballypatrick	Ballypatrick	Stone	Non-scheduled	In forest
Ballypatrick	Ballypatrick	Stone Setting	Non-scheduled	In forest
Ballypatrick	Ballypatrick	Urn Burial	Non-scheduled	In forest
Ballypatrick	Ballyvennaght	Penal Site	Non-scheduled	In forest
Ballypatrick	Ballyvennaght	Standing Stone	Non-scheduled	In forest
Ballypatrick	Glenmakeeran	Megalithic Tomb -possible	Non-scheduled	In forest
Ballypatrick	Glenmakeeran	Settlement Site	Non-scheduled	Close to forest

Bann Woods South	Culmore	Burial	Non-scheduled	Close to forest
Breen	Ardagh	Standing Stone	Non-scheduled	In forest
Breen	Breen	AP Site*	Non-scheduled	In forest
Breen	Breen	Earthwork	Non-scheduled	In forest
Breen	Breen	Souterrain	Non-scheduled	In forest
Breen	Doonfin	Standing Stone	Non-scheduled	In forest
Breen	Doonfin (Possible)	Fortification - possible	Non-scheduled	In forest
Breen	Shanes	Megalithic Tomb - possible	Non-scheduled	In forest
Capanagh	Braetown	Rath	Non-scheduled	Close to forest
Capanagh	Capanagh	AP Site*	Non-scheduled	In forest
Clare	Araboy	Megalithic Tomb	Non-scheduled	In forest
Clare	Cape Castle	Souterrain	Non-scheduled	In forest
Clare	Cape Castle	Urn Burial	Non-scheduled	In forest
Clare	Carneately; Carns-ampson; Moyargret Upper	Enclosure - possible	Non-scheduled	In forest
Clare	Carnlelis	Rath & Souterrain - possible	Non-scheduled	In forest
Clare	Carnlelis	Souterrain	Non-scheduled	In forest
Clare	Carrowcroey	Standing Stone	Non-scheduled	In forest
Clare	Craiganeer	AP Site*	Non-scheduled	In forest
Clare	Curramoney	Cairn - possible	Non-scheduled	In forest
Clare	Curramoney	Graveyard	Non-scheduled	In forest
Clare	Curramoney	Souterrain	Non-scheduled	In forest
Clare	Liscolman	Findspot	Non-scheduled	In forest
Clare	Liscolman	Souterrain	Non-scheduled	In forest
Clare	Magheramore	AP Site*	Non-scheduled	In forest
Clare	Magheramore	AP Site*	Non-scheduled	Close to forest
Clare	Mazes	AP Site*	Non-scheduled	Close to forest
Cleggan	Cleggan; Killycarn	Settlement Site	Non-scheduled	In forest
Cleggan	Longmore	AP Site*	Non-scheduled	In forest
Cleggan	Longmore	Cairn	Non-scheduled	Close to forest
Cleggan	Longmore	Enclosure	Non-scheduled	In forest
Cleggan	Longmore	Megalithic Tomb	Non-scheduled	In forest
Cleggan	Longmore	Non-Antiquity	Non-scheduled	In forest
Cleggan	Longmore	Sheepfold	Non-scheduled	In forest
Craigs	Craigs	Rath	Non-scheduled	In forest
Craigs	Glenbuck	Cairn	Non-scheduled	In forest
Glenariff	Barard (Possible)	Uncertain	Non-scheduled	In forest
Glenarm	Deer Park Farms	Cashel	Non-scheduled	Close to forest
Glenarm	Deer Park Farms	Enclosure	Non-scheduled	Close to forest
Glenarm	Great Deer Park	Enclosure	Non-scheduled	Close to forest
Muckamore	Baloo	Enclosure	Non-scheduled	Close to forest

Portglenone	Mullinsallagh	Graveyard	Non-scheduled	In forest
Portglenone	Mullinsallagh	Holy Well	Non-scheduled	In forest
Portglenone	Slievenagh	Earthwork	Non-scheduled	In forest
Portglenone	Slievenagh	Rath	Non-scheduled	Close to forest
Randalstown	Shanes Castle Park	AP Site*	Non-scheduled	Close to forest
Randalstown	Shanes Castle Park	Enclosure	Non-scheduled	In forest
Randalstown	Shanes Castle Park	Rath	Non-scheduled	In forest
Randalstown	Shanes Castle Park	Souterrain	Non-scheduled	In forest
Slieveanorra	Ballybraddin	Non-Antiquity	Non-scheduled	In forest
Slieveanorra	Beaghs	AP Site*	Non-scheduled	In forest
Slieveanorra	Beaghs	Battle Site	Non-scheduled	In forest
Slieveanorra	Beaghs; Carnbuck; Eagle Hill	Mound	Non-scheduled	In forest
Slieveanorra	Beaghs; Corkey Little; Corkey Mid- dle; Corkey South	Non-Antiquity	Non-scheduled	In forest
Slieveanorra	Carnbuck; Skerry East	Cairn	Non-scheduled	Close to forest
Somerset	Somerset	Occupation Site	Non-scheduled	In forest
Tardree	Carneary	Battle Site	Non-scheduled	In forest
Tardree	Carneary	Cairn	Non-scheduled	In forest
Woodburn	Bryantang; Middle Division	Burial	Non-scheduled	Close to forest
Woodburn	Commons	AP Site*	Non-scheduled	In forest
Woodburn	Commons	AP Site*	Non-scheduled	Close to forest
Woodburn	Commons	Cairn	Non-scheduled	In forest
Woodburn	Commons	Cairn - possible	Non-scheduled	In forest
Woodburn	Commons	Enclosure	Non-scheduled	In forest
Woodburn	Commons	Standing Stone	Non-scheduled	In forest
Woodburn	Lough Mourne; North East Division	Crannog	Non-scheduled	Close to forest
Woodburn	Middle Division	Souterrain - possible	Non-scheduled	In forest
Woodburn	North East Division	Enclosure	Non-scheduled	In forest
Woodburn	North East Division	Findspot	Non-scheduled	Close to forest
Woodburn	West Division	AP Site*	Non-scheduled	In forest
Woodburn	West Division	AP Site*	Non-scheduled	Close to forest
Woodburn	West Division	Mound Or Enclosure - possible	Non-scheduled	In forest
Woodburn	West Division	Standing Stone	Non-scheduled	In forest

*Unverified site identified by aerial photography

Map 1: Forests and woodland in Antrim Forestry Planning Area (FPA)



