

Woodland creation at the Fasque Estate

A case study in sustainable
forest management

Introduction

Gresham House is the largest sustainable productive forestry investment manager in the UK, by area under management.¹

We invest primarily in softwood forests in the UK, Ireland, Australia and New Zealand, but we are increasingly expanding our activities to other geographies and focusing on planting a greater diversity of species.

As a leading forest investment manager, we have a firm commitment to sustainability, ensuring that positive, real world environmental and social outcomes are delivered alongside the potential for financial returns, whilst promoting industry-wide best practice.

1. Source: Forestry journal, 2022

There are three key tenets of sustainable investment in forestry that shape impact across the lifecycle of an investment:

- 1** An investment due diligence process underpinned by ESG considerations
- 2** Sustainable forest management seeking to maximise positive environmental and social outcomes
- 3** Measurement of Key Performance Indicators, to monitor and enhance sustainability outcomes

This report aims to shine a light on Gresham House's sustainable forest management practices, focusing on the acquisition and ongoing management of the Fasque Estate (Fasque), a recently acquired afforestation project.

About Gresham House

Gresham House is a specialist alternative asset manager. We offer a wide range of sustainable investment solutions across a suite of asset classes covering forestry, real estate, infrastructure, renewable energy, battery energy storage, and public and private equity.

Our purpose at Gresham House is to deliver effective and alternative investment solutions to help clients achieve their financial objectives, while contributing towards the transition to a more sustainable economy.



Sustainable forest management

Sustainable forest management ensures that all forest benefits are maintained over the long term.

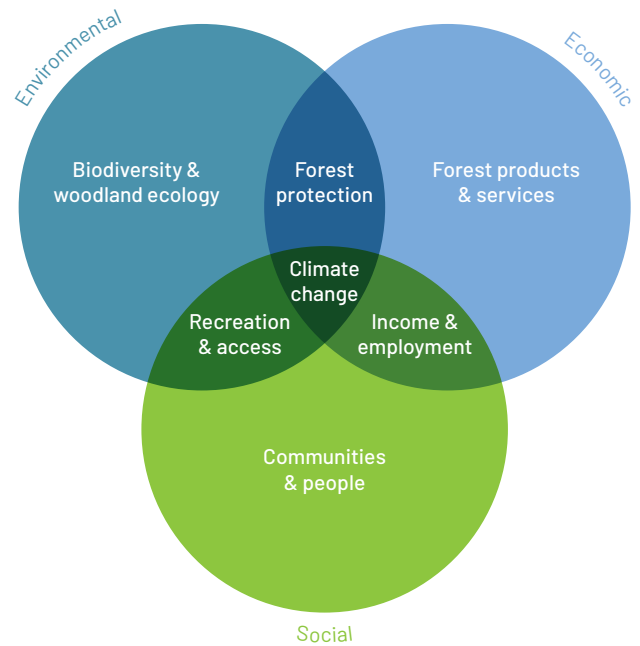
The Gresham House **Forestry Sustainable Investment Policy** sets out the framework within which ESG considerations are implemented throughout the due diligence, acquisition and management process.

To achieve sustainable forest management, environmental, economic and social functions interact and support each other as outlined in the diagram to the right.

Launched in 2022, the Gresham House **Forest Charter** underlines our commitment to sustainability across all of our forest assets, while providing measures, or Key Performance Indicators (KPIs), to evaluate and subsequently improve sustainability outcomes.

Our commitments are based on the core principles underlying international forestry standards; globally recognised frameworks for sustainable forest management.

In publishing our Charter we aim to provide transparency on how we approach sustainable forest management, helping to promote best practice in the industry.



Forests are vital to life on Earth. They purify the air we breathe, filter the water we drink, prevent erosion, and act as an important buffer against climate change. Forests offer a home to much of the world's diverse array of plants and animals and provide essential natural resources from timber and food to medicinal plants. Forests also support the lives of local communities and help them to thrive.

WWF (World Wide Fund for Nature)

Background

In October 2021, Gresham House completed the acquisition of c.800 hectares (ha) of land for woodland creation near Fettercairn in Aberdeenshire.

The acquisition builds on Gresham House’s experience in sourcing and delivering large-scale afforestation projects.

Situated on the historic Fasque estate, equidistant between Aberdeen and Dundee, the land comprised a mix of improved pasture and swathes of degraded heather moorland.

Historically this land was used for rural sporting pursuits and hill farming, providing income for the landowner and employment for the local community.



Since acquisition, 1.5 million trees have been planted at Fasque.

Land use	Area (Ha)	%	UKFS* req.
Internal open ground (IOG)	155	20%	>10%
Mixed broadleaves (MB)	212	27%	>10%
Norway spruce (NS)	78	10%	N/A
Scots pine (SP)	336	43%	N/A
Total	781	100%	

Public consultations were held in order to account for a range of stakeholder interests, resulting in the delivery of an afforestation project supportive of the wider aims of the local community.

Since the acquisition, 336 hectares of native productive conifers (Scots pine) have been planted, whilst 47% of the land is being managed primarily for the conservation or enhancement of biodiversity.

Today, the site is a multispecies plantation that will provide; an evergreen resource of sustainable timber production, myriad biodiversity and natural capital benefits, as well as income, employment and leisure for the local community.

*United Kingdom Forestry Standard



Forest products and services

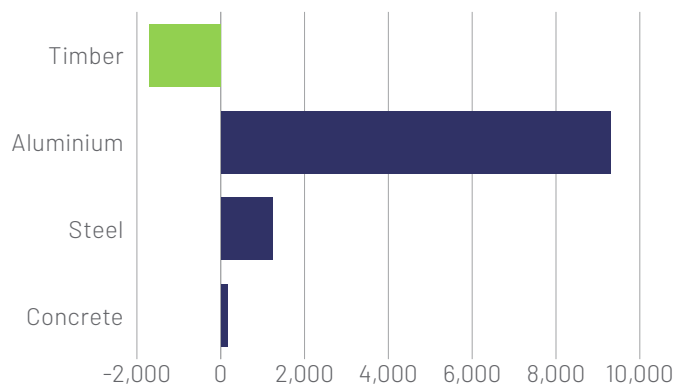
220,000 tonnes of timber are expected to be harvested over the next 60 years from Fasque. As countries continue to decarbonise their economies, timber is widely recognised as a powerful tool in the transition to Net Zero, as outlined in the [Gresham House Global Timber Outlook](#).

Timber, particularly when used in construction, offers an inexpensive, sustainable, low carbon, renewable material in comparison with alternative building materials. It is underpinned by five key tenets:

- When used in modern methods of construction, timber has better building characteristics than traditional materials, e.g. its strength-to-weight ratio
- Timber has superior insulation properties, meaning lower operational emissions
- Timber construction provides a long term store of carbon, while other construction materials emit carbon dioxide
- Timber permits off-site prefabrication, reducing cost and building times
- Timber is a renewable material, which supports the shift from a linear consumption economy to a circular economy, reducing our depletion of finite natural resources

The construction industry accounts for 36% of all CO₂ emissions in Europe, highlighting the importance of timber in decarbonising economies.
(European Commission, 2020)

Emissions in the production of one tonne

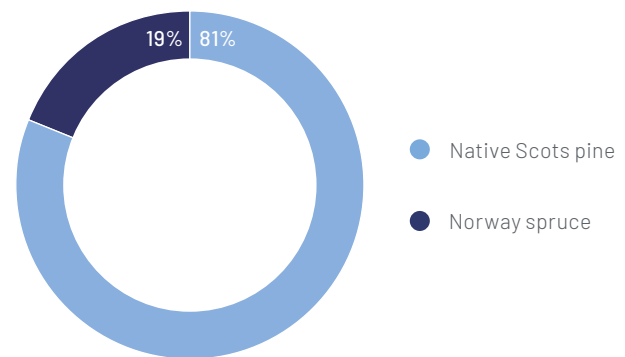


Source: New Zealand Forest Owners Association

KPIs

- Timber harvest volume (tonnes)
- Timber sold that is certified (%)
- Carbon credits generated (tCO₂e)
- Carbon credits registered (%)

Productive conifer breakdown



Source: Gresham House, 2023

Over 1.1 million timber-producing trees have been planted on the scheme at Fasque estate since last year, 81% of which are native to Scotland. 220,000 tonnes of timber are expected to be harvested over the next 60 years from Fasque.

This is enough wood to build nearly 60 'Plyscapers' like the HoHo building in Vienna shown below, which stands at 84 metres tall. The timber will supply a range of local sawmills, contributing to jobs and income in rural communities.



Credit: Baudevelopment GmbH

Biodiversity and woodland ecology

Nearly 70% of the land for woodland creation has been planted with native trees. Sustainably managed forests have significant ecological benefits in addition to their role in reversing biodiversity loss.

Planting and managing forests sustainably accelerates ecological succession, which allows for new species and ecological communities to take hold within a certain area. Trees improve the soil beneath them, as well as enhancing water quality, whilst providing key nutrients to allow new ecological communities to evolve. Whilst this succession takes time, it creates further diversification.

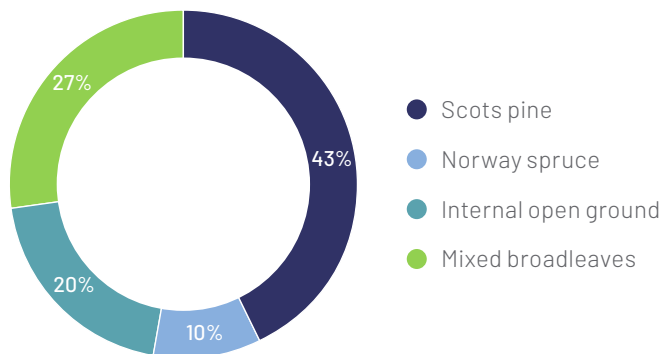
Wide ranging and extensive surveys were carried out in order to navigate habitat and ecological constraints, including:

- Ecology report
- Breeding birds survey
- Archaeology report
- Soil surveys
- Peatland surveys
- Grouse surveys

As shown in the chart below, the previous hillside has been restructured into a diverse mix of land uses:

- 20% is designated internal open ground, including access tracks, which provide ecological corridors for improved biodiversity
- Mixed broadleaves account for 27%, reflecting a range of native non-productive trees and shrubs

Land use breakdown



Source: Gresham House, 2023

KPIs

- Area of forest land managed for biodiversity (%/ha)
- Area of forest land allocated to a single species (%/ha)
- Area of forest land allocated to native species (%/ha)
- Number of biodiversity assessments undertaken in 2022
- Area of forest land with protected conservation status (ha)
- Number of threatened species present on forest land
- Volume of standing and fallen deadwood per hectare (m³)

Nearly 70% of the land for woodland creation has been planted with native trees, which have coevolved to support surrounding ecological systems. These trees require less maintenance, whilst additionally supporting greater flora and fauna.²

There are three water features on the estate, as well as important grouse leks. Riparian zones of low-density native broadleaves have been created around these features, creating a dappled woodland which aims to improve the habitat for local animal populations, as well as serving hydrological functions.

Low density native broadleaves ³	Trees
Juniper	848
Alder	424
Downy birch	1,695
Goat willow	85
Hawthorn	848
Rowan	4,577

2. Source: Woodland Trust, 2020

3. 'Low density' refers to woodland areas of less than 350 trees per acre



70% of the land has been planted with native species

Did you know?

'Ecological succession' is the process by which the mix of species and habitat in an area changes over time.



Income and employment

All aspects of the planting process have been undertaken by Scottish contractors. Historically, the Fasque Estate provided income and employment in the local area, mainly through mixed farming and rural sporting opportunities.

Forestry provides 30% more employment than sheep farming on a per hectare basis, whilst the nature of forest lifecycles requires more varied employment and more specialist expertise, levelling up skills among local contractors.⁴

The range of employment opportunities include but are not limited to:

- Woodland management: Planting, beating up, thinning, restocking, pest control, mapping
- Infrastructure: Road and access route creation, fencing
- Timber production: Harvesting, haulage, timber processing
- Natural capital: Ecologists, environmentalists, hydrologists, ornithologists, carbon specialists
- Administration: Business and finance management

According to the Eskdalemuir Report by the Scottish Agricultural College (SAC), forestry contributes double the amount of income to local economies⁴ than hill farming, highlighting the associated economic benefits to local communities from the change in land use.

4. Confor, 2014

KPIs

- Number of health and safety incidents recorded (includes Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR), Non-RIDDOR, Near Misses and Environmental Incidents)
- Number of fatalities recorded

We believe sustainable forest management demands engagement with local communities to deliver beneficial social and economic outcomes. A duty of stewardship underpins our approach, ensuring that all in-forest operations utilise local contractors, where possible, to guarantee the associated economic and social benefits for local communities.

At Fasque, all aspects of the planting process, including ground preparation, planting, fencing and deer management have been undertaken by Scottish contractors and the majority of the trees have been sourced from nurseries in the North of Scotland.



All Gresham House contractors are paid over the National Living Wage



Climate change

It is estimated that just over 450,000 tonnes of carbon will be captured over 60 years by the woodlands created at Fasque. Gresham House is committed to tackling climate change through carbon sequestration, by which carbon dioxide (CO₂) is converted into carbon stored in the wood, through the growth and promotion of carbon sequestering materials.

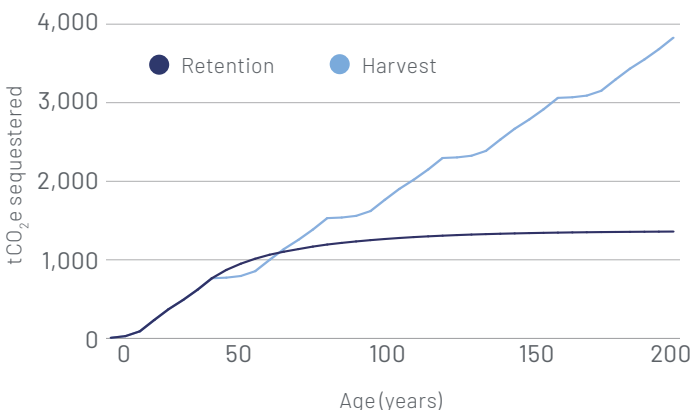
Harvesting forms a key tenet of sustainable forest management for maximising carbon sequestration. We harvest trees at the point their marginal growth rate begins to decline. This ensures that over a long period, a piece of land will sequester significantly more carbon when harvested at maturity, as opposed to leaving trees 'on the stump' for eternity.

Nearly 75% of UK timber is used in construction and ancillary products. Unlike biomass which burns wood to produce energy, and therefore converts the carbon stored back into carbon dioxide, the carbon embodied in construction wood can be locked up for up to 100 years after harvesting. In fact, it is only released through decomposition or combustion.

At Fasque, Scots pine has been used in planting for its growth qualities on marginal land. Scots pine seeds selected from tree stands around the UK, predominantly from nurseries in North Scotland, have been used for their superior yield to improve sequestration rates.

It is estimated that just over 450,000 tonnes of carbon will be captured over 60 years by the woodlands created at Fasque, helping contribute towards net zero targets by reducing atmospheric levels of greenhouse gases.

Cumulative sequestration of Sitka spruce (tCO₂e)



Estimates based on historical data and assumptions, and cannot be guaranteed.

KPIs

- Carbon stock (tCO₂e)
- Total carbon emissions sequestered (tCO₂e)
- Operational emissions (tCO₂e)
- Operational energy consumed (kWh)
- Operational energy consumed that is renewable (%)
- Area of peatland present (ha)

This is equivalent to the annual emissions of Perth and Inverness (Statista, 2022). Taking establishment emissions and timber harvesting into account, the planting scheme is expected to generate 128,270 carbon credits. This project has been registered with the Woodland Carbon Code.

We believe that the development of carbon markets is critical in promoting decarbonisation, creating an onus on emitters to take responsibility for the pollution caused by their activities, as well as creating private incentives to encourage tree planting

Fasque is a good example of carbon financing in sustainable forest management through:

- Encouraging private investment into planting trees
- Producing or generating high-quality nature-based CO₂ removal credits with which companies and individuals may offset their emissions
- Increasing timber production, to replace higher carbon intensive materials currently used in construction



Over the next 60 years, carbon captured by Fasque woodlands is estimated to be equivalent to the annual emissions from the populations of Perth and Inverness

Did you know?

A carbon credit is a unit verifying that 1 tCO₂e has been sequestered from the atmosphere. Carbon credits can be retired to offset (or inset emissions if via a direct investment emission) as part of a net zero strategy alongside actions to reduce emissions.



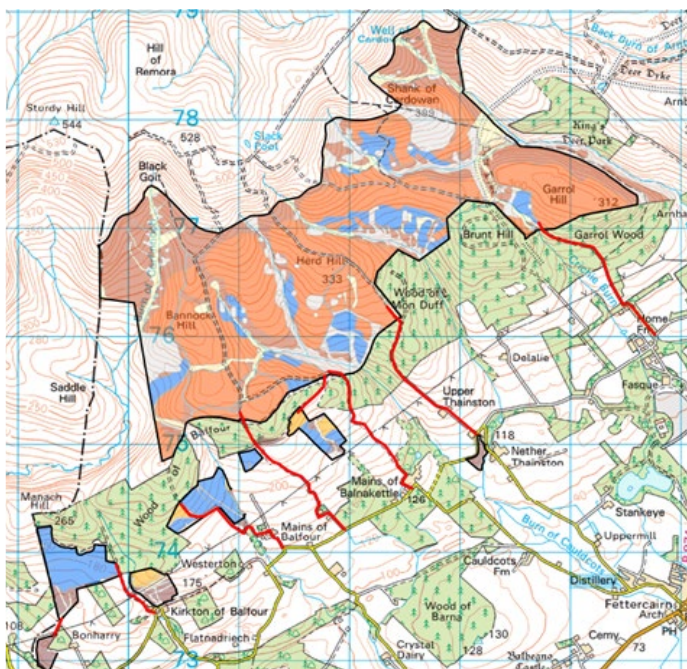
Forest protection

Scots pine seeds have been picked for their performance in higher temperate climates, reflecting estimates on 2050 climate conditions. Effective forest protection is essential to preserve and improve the range of ecological, environmental and social benefits associated with woodlands.

Using correct and professional silvicultural practices, woodland managers are able to maintain or improve the productivity of the underlying ground whilst creating new ecosystems which support native species.

Although there are circumstances when forest land can be converted, a key element of forest protection is zero deforestation, which ensures that land will not be converted to non-forest use.

Historically, part of the land planted at Fasque was used as a Christmas tree plantation. Whilst festive, these operations degraded the underlying land with drastic landscape changes throughout the short lifecycle from planting to harvesting. Sustainable forest management improves the productivity of the underlying land whilst minimising the effects to habitats and the local community. We have undertaken to transition this land in line with the broader management strategy and over time we expect this area and the wider Fasque Estate to improve in quality enabling the development of further ecosystems.



KPIs

- Standing timber inventory (m³)
- Timber harvest volumes (tonnes)

Throughout the planting design process many opportunities were identified to maximise the protection of the forest:

- Mapping the topography of the site was critical in determining how to best protect the site from weather events such as Storm Arwen
- Riparian zones have been planted alongside these features to improve the hydrological functions as well as create habitat areas
- Deer fencing has been erected to protect young crops from grazing damage
- Local pest controllers were engaged to shield crops from harmful pest damage
- Scots pine seeds were picked for their performance in higher temperate climates, reflecting estimates on 2050 climate conditions

The long-term management plan is a critical part of sustainable forest management, which sets out a strategy for sustainably harvesting the timber whilst minimising effects to local habitats and communities. The inclusion of the adjacency rule, ensuring you must not harvest adjoining areas consecutively, allows for a mosaic of age classes and tree species within a piece of land. This minimises the landscape effects on local residents and creates a heterogeneity that promotes biodiversity and habitats.



Fasque is the largest Scots pine scheme in the Grampians, aiding the reforestation of Scotland's native pine forest



Communities and people

The creation of ecological corridors and tracks has connected the planting scheme with the wider Fasque Estate. We believe that sustainable forest management requires engagement, not just with those who live close to the trees, but the wider population that enjoy woodlands for recreation, leisure and tourism activities.

Planting the Fasque Estate involved a consultation process integrating viewpoints from a wide array of stakeholders, including but not limited to:

- Fasque Estate
- Scottish Forestry
- Local Residents
- Historic Environment Scotland
- Walking groups

The process began with an initial planting design for the scheme. Wider public consultations were held to determine any issues that arose from this initial design. Issues presented at these consultations were then addressed in the final design for the scheme.

One issue that arose was concern from neighbouring houses with extended views over the site. We addressed these concerns by designing more aesthetic woodlands with a higher concentration of mixed broadleaves in these areas to produce scalloped edges. The consultation process was key in gaining local support for the scheme as well as improving the social return for the project. As a result of this, no grievances were raised about the final design.

Community access is key to maximising the social outcomes at Fasque. Gresham House welcomes locals, tourists and outdoor activity groups to enjoy and experience the forest. The creation of ecological corridors and tracks has connected the planting scheme with the wider Fasque Estate, allowing for improved walking access. Afforestation at Fasque involved an intimate mix of species, creating a mosaic of tree species that encourage recreation and tourism in the woodlands.



No significant grievances were raised with the final design, maximising the social return for the project



Forestry certification and standards

Fasque is currently in the process of certification in line with two recognised international standards. There are a number of internationally recognised standards of sustainable forest management around the world, which work to ensure that the management of forest assets is in line with best sustainable practices.

These working groups are critical in promoting best-in-class forest management, whilst providing end consumers with the comfort that the wood they buy is responsibly sourced.

The Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC) are leading global standards for forestry management. In the UK, the UK Woodland Assurance Standard (UKWAS) is the standard which the aforementioned standards are audited against.

Gresham House certifies all forests under management, unless instructed otherwise.

KPIs

- Area of forest land certified to a third-party forest management standard (%)

As part of the certification process, regular internal audits as well as third-party audits are undertaken across a number of assets to ensure compliance with these standards.

The Fasque Estate is currently in the process of certification to both international standards. As the largest forestry asset manager in the UK, at Gresham House we believe that we have a responsibility to drive progress on forestry standards in the wider industry.

Our commitment to certification across Gresham House managed assets aims to ensure that local communities benefit from an impact beyond what is required, defining our approach to the responsible stewardship of forest assets.



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UK Head Office

Gresham House, 80 Cheapside, London EC2V 6EE

☎ (0)20 7382 0999

✉ info@greshamhouse.com

www.greshamhouse.com

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