Scottish Forestry
Rural Development
Forestry Grant Scheme Evaluation

SF_0459

Ecological and Habitat Assessment of Woodland Sites - Scotland

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A report to:

Scottish Forestry
Forestry Development
Edinburgh

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EXECUTIVE SUMMARY

The conservation, maintenance, and future sustainability of Scotland's most precious habitats and species is a task which is applicable to all of us whether we have a direct and vested interest or as a collective force. It is wholly our responsibility to do all that we can to tackle the worldwide climate and biodiversity emergencies. This includes focusing on robust stewardship of our woodlands and forests to facilitate and secure their long-term sustainability.

Scotland's natural resources have been affected by man for millennia, and reverting the degradation of our ecosystems requires achieving a balance of objectives in our race to maintain, regenerate and conserve. Developing, and satisfactorily implementing, restoration of Scotland's extremely varied forests and woodland is a vital component in addressing the all-encompassing threats to biodiversity.

We therefore have the utmost responsibility to maintain the momentum and progress that has been made so far and to continue to apply all mechanisms available to continue to reach achievable goals. The implementation of regulated and targeted support, developed over many years, is now producing tangible results and has prepared a solid foundation for building upon and taking the sustainability of our natural resources to the next level.

Over the last forty years, there has been an increasing focus on conserving and enhancing the native woodland resource in Scotland and the associated biodiversity aspects. In this regard, and in line with the United Kingdom and more recently direct Scottish Forest Policy, there has been a range of financial incentives set in place which have gradually increased in their scope and prioritisation.

The current grant-funded mechanism available to landowners, managers and custodians of our woodland resources is currently the Scottish Forestry's Forestry Grant Scheme (FGS). The scheme forms part of the incentives available via the Rural Development Programme (SRDP), covering the period 2014-2020, delivering Pillar 2 of the EU Common Agricultural Policy and co-financed by the European Agricultural Fund for Rural Development.

Acceleration of the implementation and establishment of new native woodlands and woodland improvement measures under FGS has been wide-ranging throughout Scotland, covering a suite of funded support. This study was commissioned to independently assess specific grant-funded operations in line with a range of options available via FGS covering schemes implemented during the period between 2014 to 2021. With focus directed towards evaluating whether the aims of the grant scheme initiative have been achieved, and to assist in the subsequent monitoring of the benefits of the public investment.

Thirty-seven FGS approved projects located throughout Scotland, and covering the five Scottish Forestry Conservancies - Highland, Perth and Argyll, Grampian, Central and South, were included within the assessment sample.

To implement the assessment in a structured format, three categories of FGS support were considered with a focus on native woodlands, and covered:

- Woodland Creation – Woodlands for Riparian Benefit
- Woodland Improvement Grant – Habitat & Species
- Sustainable Management of Forests – Woodland Grazing

The resultant findings from this study were found to be generally positive with the overall conclusion being that the various FGS initiatives have been successful in the delivery of their stated aims and objectives. However, with the assessment only covering thirty-seven FGS project sites, the sample can only be deemed a summary. A range of categories and outputs and variable parameters were deemed applicable, and therefore direct comparison was not consistently possible.

FGS sites visited were found to have been implemented in accordance with industry best practice guidelines, and no instances of non-compliance in this regard were encountered on any site.

WOODLAND CREATION – WOODLANDS FOR RIPARIAN BENEFIT

The overall benefits of establishing trees as an enhancement to riparian margins benefits were deemed to be expansive and wide-ranging - both in the short term and in consideration of the stated longer-term aims and objectives.

- The land being converted to woodland within riparian margins was found to be generally small and fragmented. This is positive in that previously unused or unproductive areas are now becoming permanently wooded and in turn supplying a considerable range of additional benefits. For example, improved water quality, erosion management and habitat provision.
- The overall establishment success was predominantly very good, particularly where tree guards have been used.
- The overall benefits to habitat connectivity were found to be high, as riparian margins often linked already established blocks of both native and commercial woodland.
- Most of the projects assessed were fairly small and stand-alone, although the more recent schemes were being integrated with larger woodland creation establishments, particularly in upland areas. This also demonstrates an increased confidence and awareness of the targeted option.
- Further benefits include the availability for intermixing other species where suitable, such as the establishment of productive broadleaves, and shelter for stock, screening or for recreational purposes.

WOODLAND IMPROVEMENT GRANT – HABITATS & SPECIES

All the FGS projects sampled and included within this assessment were found to have implemented operations which focused on improving the overall woodland habitat - as per the scope of output specified within each individual FGS contract.

Due to the small sample size covered by this assessment however, and the variability of the corresponding parameters relevant to each individual project, the reported findings can only be summarised in a fairly broad context.

Detailed, site-specific reporting for each FGS project has been separately prepared and supplied to Scottish Forestry for their own internal use.

- Many of the FGS projects assessed were found to have stated overly ambitious targets and were also set over too short a timescale.
  Although many designated sites were found to be well on their way to achieving their stated goals, the speed of improvement will continue to remain slow and require ongoing well-structured management and operational input.

- One PAWS restoration site was included in the assessment, and due to the unique parameters associated with the project, habitat improvement was found to be progressing positively albeit slowly, with full restoration evidently to take many years.

- The construction of fencing as an FGS funded capital output has been used as a main component of working towards achieving habitat improvement on many sites sampled. The success of fencing as an aid to kick start habitat improvement during the term of the corresponding FGS contracts was found to be mostly positive, albeit variable, and highly dependent on a range of parameters.

- The targeted removal of ground vegetation was not widespread within those FGS projects included in the assessment sample. Where bracken control had been implemented no extended results were evident.

- Where the vegetation was subject to managed grazing the results were found to be generally positive, with a seed bed conducive to seedling establishment.

- The presence of thick and well-established ground vegetation, particularly at sites where fencing has successfully excluded deer, has not been overly successful.

- Where the targeted funding option had been delivered specifically in relation to *Rhododendron ponticum* control the overall success of the operations in accordance with the FGS contracts was found to be good. This demonstrates that focusing on individual operations as a priority can be particularly conducive to robust improvement.

- Those FGS projects delivering R. *ponticum* control via targeted management planning were found to be continuing to implement operations unfunded. This demonstrates a high level of stewardship, with a longer-term commitment to maintaining and improving a range of woodland habitats.

- FGS projects which were follow-on, second or third phases, were found to be further progressed than those that were on their first round of operations. This was applicable to all types of projects, whether subject to targeted support or covering a range of outputs.

SUSTAINABLE MANAGEMENT OF FORESTS – WOODLAND GRAZING

The benefits of implementing controlled grazing within woodlands is deemed to be expansive and wide-ranging, particularly when it is managed in combination with other habitat improvement operations.

- All FGS project sites sampled and visited were assessed as complying with the FGS contracted requirements, including their Woodland Grazing Management Plans.

- All sites were now out with the term of their FGS, and all but one site was not subject to follow up grazing.

- Those sites which were follow-on projects, were found to be well-established and demonstrating sustainable improvements in delivering their medium-term objectives. Including well-established natural regeneration and some extent of age-class diversity emerging.

- The size of the woodland grazing areas was found to not necessarily be a limiting factor, although where very large, and with other competing constraints, the resultant overall improvement was generally less.

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1. INTRODUCTION

1.1. Objectives

This report has been commissioned by the Forestry Development Team at Scottish Forestry, the over-riding regulatory authority tasked with managing and overseeing forestry management in Scotland.

This overall objective of this study is to undertake an evaluation of the implementation of specific grant-funded operations in line with a range of options available via the Forestry Grant Scheme (FGS) covering schemes initiated and implemented during the period between 2014 to 2021. As such, there is a mix of schemes which are now completed and those that remain under the requirement of their relevant contracts.

As part of the evaluation Scottish Forestry have commissioned Amy R Mitchell MICFor as an independent consultant to implement an ecological and habitat assessment of FGS woodland sites from throughout Scotland. The main objective being to conclude on the overarching success of the various FGS options focused upon, in addition to appraising their practical delivery.

A total of thirty-seven Forestry Grant Schemes (FGS) approved projects located throughout Scotland, and covering the five Scottish Forestry Conservancies - Highland, Perth and Argyll, Grampian, Central and South, were included within the assessment sample.

2. SCOPE

2.1. General

The scope of this commissioned study is to provide Scottish Forestry with an external appraisal and evaluation of the ecological and habitat status of specific identified FGS grant-funded initiatives, and specifically in consideration of the corresponding habitats and species. Focus is directed towards evaluating whether the aims of the grant scheme initiative have been achieved and to assist in the subsequent monitoring the benefits of the public investment.

Furthermore, recommendations for maintaining momentum in continuing to use grant-funded incentive mechanisms to facilitate sustainable solutions is provided.

To implement the assessment in a structured format, and to aid reporting, the scope of the exercise has been split into three separate FGS grant-funded options, these being:

- Lot 1 - Riparian Woodlands.
- Lot 2 - Habitat Improvement.
- Lot 3 - Woodland Grazing.

The identified requirements of the assessment and reporting for each FGS option covered is summarised below.

2.2. Lot 1 – Riparian Woodland

The assessment of woodland creation projects with areas of riparian woodland in order to:

- determine whether the woodlands had been planted in accordance with industry best practice guidelines;
- assess the perceived long-term ecological benefits the woodland; and,
- what, if anything, could be improved upon.

2.3. Lot 2 – Habitat Improvement

The assessment of both designated and un-designated woodland sites that have received various grant-funding in order to achieve a range of outcomes to:

- determine whether the overarching requirements of the FGS contract have been implemented and in an appropriate manner;
- assess whether progress has been made in achieving the intended objectives / outcomes as per the terms of the FGS project;
- assess whether the FGS projects have been appropriately monitored for progress and follow up operations implemented, where applicable, as a result; and,
- whether any further improvements could be made in line with on-going and future management.

Depending on the grant option specified for each FGS project, the focus of the habitat improvement covered a range of outcomes, and included:

- the restoration of Plantations on Ancient Woodland Sites (PAWS);
- the clearance of *Rhododendron ponticum;* and,
- enclosing area of native woodlands with fencing, an implementing associated operations carried out within the enclosure with the intention of improving the woodland features.

2.4. Lot 3 – Woodland Grazing

The assessment of FGS projects subject to the terms of a Woodland Grazing Plans to:

- determine whether the grazing has been carried out in accordance with the approved plan;
- whether the grazing has maintained the condition of the native woodland;
- whether the grazing regime has resulted in maintaining or increasing the overall extent of the priority woodland habitat; and,
- whether the grazing regime has benefited designated features or priority habitats where applicable.

3. SCOTTISH FOREST POLICY

3.1. Background

The internationally recognised principles of sustainable forest management are at the core of the forestry and woodland management in the United Kingdom (UK).

Forestry, woodland and tree management in Scotland, devolved from the rest of the UK, is governed and regulated under the Scottish Government's Forestry and Land Management (Scotland) Act 2018. A requirement of the act was the enactment of a forestry strategy presenting a 50-year vision and a 10-year framework to action, expand, protect and enhance Scotland' forests and woodlands. Thus, working progressively to assist in the delivery of greater economic social and environmental benefits to Scotland's people via the sustainable management of forests and woodlands. The UK Scottish Forestry Strategy 2019-2029 (UKFS) was published in February 2019.

Scottish Forestry is the Scottish Government agency responsible for managing supporting and regulating forestry policy in Scotland. Their scope covers the supervision of the all-encompassing aspects of forestry business, forests in the environment, sustainable management, and the interaction of people with trees.

In consideration of woodland management and woodland creation, Scottish Forestry manage the regulatory and grant support mechanisms which have been developed to ensure that Scotland's woodlands are managed in accordance with the principles of sustainable forest management as defined by the UKFS.

The current facility available to assist in the integration of Scotland's woodlands and forests in rural development, integrated land management and sustainable land use, is the Forestry Grant Scheme (FGS). The scheme forms part of the incentives available via the Rural Development Programme (SRDP), covering the period 2014-2020. The SRDP delivers Pillar 2 of the EU Common Agricultural Policy and is co-financed by the European Agricultural Fund for Rural Development.

3.2. Forestry Grant Scheme (FGS)

Via the Scottish Rural Development Programme 2014-2020, £252 million was made available through the Forestry Grant Scheme. The scheme supports woodland creation, woodland improvement and sustainable management of existing woodlands. A variety of capital grants have been made available, with a range of aims and objectives, as summarised below:

- to encourage natural regeneration and benefit priority habitats and species;
- to increase species and structural diversity through low impact silvicultural systems management;
- to support the preparation of forest and/or woodland management plans that set out management objectives for the woodland;
- to improve the biodiversity, resilience and structure diversity if even aged woodlands; and,
- to contribute to the sustainable management of urban woodlands and improve public access.

3.3. FGS – Categories of Financial Support

3.3.1. General

There are various FGS options available to forest and woodland owners and managers, and these are split into support for establishing new woodlands via woodland creation and by sustainable management of existing woodlands. Within the support available there are a range of packages which can be funded.
For the purposes of this report, three areas of FGS support were focussed upon in consideration to native woodlands. Within each of these three several specific FGS options are available, although that not all were covered by those schemes sampled and assessed as part of the study.

3.3.2. Option - Woodland Creation

This option focusses on the creation of new woodland via the planting and establishing of trees on land which has not been previously planted. There are nine grant support options available, each with specific requirements in consideration of the aim of the new woodland being created, and support targeted as per species and long-term management objectives.

Financial support varies on the type of woodland and rates depend on the species planted. Higher rates are available in consideration of specific targeted support.

3.3.3. Option - Woodland Improvement Grant

The Woodland Improvement Grant (WIG) category aims to specifically support forest management, via five different options, For the delivery of this study however not all were covered as part of the assessment (S.4.3.1 refers).

1. Planning
2. Habitats and Species
3. Restructuring Regeneration
4. Low Impact Silvicultural Systems
5. Woodlands In and Around Towns

3.3.4. Option - Sustainable Management of Forests

The Sustainable Management of Forests option supports a range of activities in the management of existing forests and woodlands with a high environmental value.
There are nine various options of support available. For the delivery of this study however, not all were covered as part of the assessment (S. 4.3.2 refers).

1. Low Impact Silvicultural Systems
2. Native Woodland
3. Livestock Exclusion
4. Woodland Grazing
5. Public Access Rural Woods
6. Public Access – Woods In and Around Towns
7. Grey Squirrel Control
8. Predator Control for Capercaillie and Black Grouse
9. Species Conservation – Reducing Deer Impact

4. METHOD

4.1. Preparation and General Approach

A total of thirty-seven FGS projects were included within the assessment - as sampled and included within the scope of the commissioned project forming this report. Further to formal instruction a commencement meeting was held with the Rural Development team at Scottish Forestry.
Documentation for all FGS schemes were provided for each of the three identified lots included as part of the scope of the awarded contract. The information supplied for each project was dependent on the FGS option and grant-funded requirements being assessed against and was restricted, but not exclusively to one or more of the following:

- FGS Operational Plan.
- FGS WIG Habitats and Species Supporting Information.
- FGS SMF-Native Woodlands Supporting Information.
- FGS Contract maps.

- Woodland Grazing Management Plans.
- Rhododendron Management Plans.
- Deer Management Plans.

The project commencement with start-up meetings with the team from Rural Development at Scottish Forestry. Regular weekly update meetings took place thereafter throughout the duration of the term of the contract, 3rd April to 30th September 2024.

4.2. Implementation - Pre-visit Desk Exercise

In preparation to implement the site visits for all thirty-seven of the FGS projects sampled and identified for inclusion in the study, covering each of the specified three Lots, the following pre-visit desk-based process was implemented:

- Collation of the information supplied by Scottish Forestry.
- First generalised review of all FGS sites, as per identified each of the three lots identified for assessment.
- Identification of all FGS sites and presenting the location and stratifying on GIS map layer.
- Preparation of a Site Assessment Form applicable for each FGS site for use whilst visiting each project, which included:
    - Summary of the corresponding FGS aim for the option.
    - Extract details of from relevant Scottish Forestry FGS Guidance notes.
    - Pre-visit site notes, including scope of the inspection, general scheme information, and details of supporting information made available.
    - Section for recording site visit notes.
    - Section for detailing follow-up notes.

- Supplementary desk-based research implemented to provide, where appropriate, further information that may be available to assist with overall assessment. For example, review of Scottish Forestry Map Viewer (ArcGIS Web Application), Scotland's Environment Web Land Information Search, and Scottish Forestry web-site, and Scottish Government Rural Payments and Services web site.
- Review of any corresponding FGS supporting information supplied, or otherwise openly available. Depending on the project this included Woodland Management Plans, Rhododendron Management Plans, Deer Management plans and SSSI Site Management Statements.
- Logistics planning for implementing site visits covering all five Scottish Forestry Conservancies located throughout Scotland – Highland, Grampian, Perth and Argyll, Central and South. In consideration of:
    - location of individual FGS project and proximity to other FGS projects;
    - size in hectares;
    - whether stand-alone or part of another grant-funded project;

- the number of FGS options and funded requirements applicable;
- tenure and land management aspects; and,
- accessibility - potential constrains and/or limitations to access, e.g. safety, land use.

- For each FGS project, initial communication was made to inform, by email and follow-up telephone where required, to all relevant contacts. This information was supplied by Scottish Forestry and included with this was a copy of a generic letter provided by the SF team as further information in relation to the background to the contract.
- Where no response was received or contact details were found not to be valid, assistance from the Scottish Forestry, Forestry Development team was requested and further contact made as appropriate.
- Secondary contact was made once a proposed date for visiting was identified, and confirmation made with the owner/land and/or forestry manager. In some circumstances helpful pre-visit discussion were made, therefore adding to the background and situation of the FGS project.
- Risk Assessment and Lone Working Procedures were made available to the landowners/ managers, with site-specific versions supplied where requested.

4.3. Implementation – FGS Site Visit

Physical site visits to each of the thirty-seven FGS sampled and listed for inclusion within this study were implemented over the term of the contract period, this being 4th April to 30th September 2024. Most of the sites being visited during June and July 2024. Access to all sites was confirmed with the landowner and/or manager prior the arranged date for visiting.

Representatives from the Scottish Forestry, Forestry Development team attended during a site visit assessment to a live FGS project during July 2024.

All site visits comprised a detailed walk-over inspection, with focus to those areas where the corresponding FGS contract scope of outputs. Field notes were taken, and noted on the prepared Site Assessment Form, in addition to considerable photographs.

For each FGS site, and in consideration of the various options applicable, the site assessment parameters were directed towards the specific requirements of each individual scheme, as per the categories detailed in sections 4.3.1, 4.3.2 and 4.3.3 below.

4.3.1. Lot 1: Woodland Creation - Woodlands for Riparian Benefit

The scope of output applicable to woodland creation with targeted support for riparian benefit specifically assessed a number of specific parameters, and included:

- Assessing condition of the sampled woodland with the principal consideration of riparian woodland establishment, and the delivery of multiple benefits to the riparian area.
- Determining whether each individual woodland scheme has been planted in accordance with industry best practice guidelines, including conforming to the UK Forestry Standard (V.5).
- Assessing each woodland site for conformance with the corresponding FGS contract requirement, for example, stocking density, design and layout, species mix, health and vigour, herbivore impact, climate resilience, condition of any protection infrastructure, ground and soils conditions, etc.
- Assessing on the ecological status of each woodland site including considerations of its present current and future potential in consideration of supporting benefits. For example, all-encompassing river and wider river catchment management. Also, ensuring that all applicable and required information is sufficiently included within the referring FGS Operational Plan.

4.3.2. Lot 2: Habitat Improvement

The assessment of FGS projects within Lot 2 identified 17 sites, focused on both designated (SSSI and SPA) and undesignated woodland sites which have been in receipt of grant funding via Scottish Rural Development Programme categories of support - Woodland Improvement Grant categories (WIG) and Sustainable Management of Forests (SMF). The overarching aim being to improve the condition of native woodlands and restoring PAWS to native woodland, and FGS projects where further targeted support for R.*ponticum* control was applicable.

Consideration was required to whether the operations implemented have and continue to assist in progressing the specific FGS woodland site toward achieving positive long-term habitat improvement benefits. The scope of output applicable to the controlled woodland grazing specifically assessed a number of specific parameters, and included either singly, or collectively:

- the condition of fencing infrastructure and the status of fencing requirements for the future;
- the extent of non-native removal, both exotic species and invasive species, and whether eradication is being suitably contained;
- the success and condition of natural regeneration colonisation and assessment as to whether there are any restrictions to progressive success, for example restrictive vegetation and herbivore browsing;
- other areas of monitoring – such as plant health and pests and diseases;
- stakeholder involvement and whether any presenting issues have been acceptably addressed; and,
- specific detail and requirements applicable to the management of designated woodland sites, including for example the consideration of baseline monitoring, habitat and vegetation survey, natural regeneration colonisation, non-native species presence, etc.
    - Managed grazing
    - Encouragement of new natural regeneration
    - Fenced enclosures/exclosures
    - Deer management
    - Bracken control
    - Vegetation removal
    - Retention and encouragement of deadwood
    - Livestock exclusion
    - Removal of exotics - fell to recycle and ring-barking

In consideration of these various options, a range of grant-funded outputs was assessed during each site visit .

Of the total FGS schemes included within Lot 2, seven projects were focussed on R. *ponticum* clearance, with assessment being made of the extent of clearance, whether recolonisation has occurred; whether cleared areas have improved; and the current status and habitat condition of any previously cleared areas.

Assessment was also made in reference to the operational detail provided within each sites' Rhododendron Management Plan.

4.3.3. Lot 3: Woodland Grazing

The assessment of FGS sites within this identified seven sites, focussed on woodland sites which have been in receipt of grant funding via SRDP categories of support - Sustainable Management of Forests (SMF) for managed woodland grazing by agricultural stock. The aim of the support being to enhance biodiversity and encourage tree regeneration through controlled livestock grazing in native woodlands or Plantations on Ancient Woodland Sites (PAWS) that are actively being restored to native woodland.

The scope of output applicable to the controlled woodland grazing specifically assessed a number of specific parameters, and included either singly, or collectively, to determine whether the controlled grazing has:

- been implemented in accordance with the approved Woodland Grazing Plan;
- maintained or enhanced the condition of native woodland habitat;
- resulted in maintaining or increasing the overall extent of priority woodland habitat, establishment of regeneration; and,
- benefited any designated features or priority habitats or species, such as the pearl-bordered fritillary and the chequered skipper butterfly.

4.4. Data Assimilation, Analysis and Reporting

Further to the physical site visit to each FGS project included within this study, the field notes and photographic images were assimilated and initial findings detailed within the Site Inspection Form.

For each of the three lots a summary of the information was assimilated into three separate documents for the aid of reporting to Scottish Forestry in an internal capacity. Each FGS site was detailed individually and contained the FGS background, the category and options applicable, the site visit notes, findings and interim recommendations. A compilation of a photographic images taken during the site visit were also included for further information.

For those FGS projects where landowners or managers had requested feedback subsequent to the site visit, this was provided. Any site which may have been identified as having either significant concerns or alternatively deserving of particular commendation, was noted and reported accordingly.

In accordance with the requirements of the study, the final report was prepared as supplied herewith. The findings being detailed in Section 5, and recommendations presented at Section 6, below.

4.5. Limitations

- The results presented within this report in line with the Scottish Forestry's scope of instruction shall not be deemed as a formal compliance inspection of the specific FGS contract requirements. It is therefore important to highlight that the thirty-seven FGS projects chosen to be visited as part of scope were inspected in a general capacity, and in direct consideration of the scope of output of the instruction.

- All recommendations are the assessment of the report author in her capacity as an independent consultant commissioned to implement the assessment on contract to Scottish Forestry. Therefore, all statements presented have been made without bias or direction from any regulatory authority source.

- The method implemented as part of this research evolved from a practical and user-friendly perspective and the results contained herewith within this report should not be deemed to represent a scientific presentation.

- Limited information in association with each FGS project was provided by Scottish Forestry, Rural Development. No contract information was made available, and only limited associated and supplementary documentation, including monitoring data.

5. KEY FINDINGS

5.1. Overview

The overall findings from the assessment of all thirty-seven FGS projects included within this study, and reported upon herewith, covering a range of categories and corresponding outputs, will aim to conclude on the assessed success each FGS option focused upon, in addition to appraising their practical delivery.
All FGS sites visited were found to have been implemented in accordance with industry best practice guidelines. No non-compliance in this regard was encountered on any site.

Detailed below are the assessed findings and results for each of the 3 lots included within this study.

5.2. Lot 1: Riparian Woodland

Ten FGS approved woodland creation projects were included within this assessment.
Table 1 below provides a summary

LOT	Number FGS	Size Ha	Age since FGS approval	Notes
Lot 1: Riparian Woodland	10	<1 1 2-10 7 11-50 2	3 – 9 years	Mix of lowland, and upland sites and small standalone native broadleaved farm woodlands and as a component of larger schemes. 1 scheme, in part, has the aim of producing productive broadleaves. No projects included with non-native or invasive species present.

Table 1: Lot 1 – Statistical Summary

5.2.1. Lot 1 - Summary Findings

The over-riding conclusion in consideration of the ten sampled and assessed Scottish Forestry FGS supported woodland creation projects subject to the implementation of the FGS Woodland Improvement Grant (WIG) option is that the overall benefits of establishing trees as an enhancement to riparian margins benefits are expansive and wide-ranging. This was both found to be relevant in the short term and in consideration of the longer term aims and objectives.

As an initiative to integrate with other wider land use management, establishing trees native trees and shrubs, either as a standalone project or integrated with other woodland projects, is deemed an extremely advantageous initiative. In many circumstances, the land being converted is small and fragmented and of reduced capacity for other land management uses.

An appropriate mix of native broadleaved tree species have been planted within all sites included within the assessment. Species have been suitably chosen in accordance with site conditions and have included application of the Forest Research Ecological Site Classification tool.

Appropriate faster growing and quick establishing species such as Aspen, alder, silver and downy birch and willow have been planted with the aim of accelerating achieving the riparian enhancement objectives. Furthermore, other native species including Scots pine, sessile oak, rowan, hazel, downy birch, prunus species, holly and other woody shrubs have been established.
In most cases, the conditions presenting within the riparian zone were found to conducive to tree and other plant growth. Soils in this regard, although potentially more mobile, were found to maintain an increased extent of fertility, and this in combination with the benefits of shelter due to associated topography and geomorphology considerations, were found to equate to increased success in positive establishment.

In one stand-alone low-ground farm woodland project, established along a riparian margin, the overriding fertility was observed as being evidently high. This project has been established with a component of productive broadleaves planted at the required close spacing which in turn has provided the landowner with additional long-term benefits.

In review of the age range of the FGS schemes sampled as part of this assessment it can be summarised that in consideration of the sites sampled, the earlier projects were smaller and were stand-alone plantings as opposed to those that have been initiated during the last 5 years. This potentially demonstrates an increased confidence and awareness that the establishment of riparian woodlands as part of larger woodland creation projects is proactive and provides a range of benefits including consideration of economies of scale.

5.2.2. Lot 1 - Assessed Ecological Benefits

The ecological benefits of riparian woodland establishment are extensive, and this was evidently applicable in all of the FGS sites sampled and visited. The relevant and stated aims of the Scottish Forestry target outcomes were assessed as being met. These outcomes include, but are not limited to:

- Diversification of water flows and protection of run-off channels.
- Increase shading of water courses, which has been assessed as being applicable after a fairly short period of time. This output will in turn gradually contribute to assisting in regulating water temperature and therefore long-term water quality.
- Substantial progress towards habitat network connectivity. This was deemed applicable for all of the projects included in the assessment.
- Riverbank stabilisation which in turn protects overall water quality, both locally and in the wider river catchment areas, for all sizes of watercourses and flow types.
- Significant reduction in the potential for diffuse pollution from adjacent land uses. This was particularly applicable in those FGS projects located in the lowlands and where productive arable or permanent pasture for stock grazing were the immediately adjacent land uses.

- Significant increases in biodiversity enhancement for wide range of habitats and species, including birds, mammals and freshwater species, and specifically in consideration of those FGS projects which fall within a river catchment of a designated SAC.
- Increases in the extent of broadleaved woodland establishment in areas where conifer and commercial plantations may be dominant, particularly in the upland areas. Thus, in turn, assisting in delivering species, age-class and woodland structure diversity.
- A number of sites included within the assessment have facilitated the linkage of existing grant-aided woodland establishment schemes, thus contributing to landscape-scale habitat expansion. This includes in further Scottish Forestry targeted areas such as for Native Scots Pine Core Pinewoods.
- Increased habitat enhancement and vegetative cover, and applicable to the corresponding site National Vegetation Classification (NVC). For example, blaeberry and heather beginning to establish on W18 sites, and a wide range of floral species associated with W11.

5.2.3. Lot 1 - Other Assessed Benefits

With the establishment of new woodlands within riparian margins there are also a range of other benefits which may be deemed as an associated benefit. These include, but are not limited to:

- Providing an alternative use for otherwise predominantly unproductive land, whether due to soils, locations, topography, access, etc.
- The conversion of small and fragmented areas of land at the edges of other types of land uses.
- The provision of enhanced shelter for adjacent land uses, including agricultural and property.
- Landscape and amenity enhancement, including screening and overall improved naturalisation.
- Providing opportunities for economic diversification and integrated land use over the longer term. For example, in the production of productive broadleaves.
- Increased stewardship of riparian margins by landowners and managers, with focused attention given to supplementary enhancements associated with the establishing riparian woodlands, for example, additional individual planting of trees in areas out with the FGS sites but with the aim of enhancing the riparian margins further.
  This was demonstrated at a number of FGS project sites where further groups and individual planted standards were observed as having been planted out with the woodland creation boundary, but still within the riparian zone.

5.3. Lot 2: Habitat Improvement

Seventeen FGS approved habitat improvement projects were included within this assessment. With seven being additionally covered by the FGS target woodland for R. ponticum control.

Table 2: Lot 2 - Statistics, below, provides a summary.

LOT	Number FGS	Size Ha	Age since FGS approval	Notes
Lot 2: Habitat improvement	Total 17 x7 with target for R.*ponticum*	<10 2 10-99 10 100-99 4 <1000 2	9 – 3 years	5x sites remain within the term of their FGS contract, none of these correspond to the R.*ponticum* control projects 13 the projects located within SSSI/SAC designated sites with the identified Qualifying Features applicable to priority habitats and species. All FGS sites visited have been implemented in accordance with industry best practice guidelines. No non-compliance was encountered on any site. 5 projects subject to previous operations in relation to the SSSI condition. 4 projects were follow-on, earlier implemented R. ponticum control grant-funded schemes under SRDP.

Table 2: Lot 2 – Statistical Summary

5.3.1. Lot 2 - Summary Findings

All would be fully expected, all of the seventeen FGS projects sampled and included within this assessment were found to have implemented operations which focused on improving the overall woodland habitat, as per the scope of output specified within each individual FGS contract.

The overall findings in consideration of the assessed success of the works apportioned to each FGS however were found to be considerably variable with a wide range of relevant corresponding parameters. In this regard, therefore, the findings reported upon herewith can only be summarised in a fairly generic context.

Detailed, site-specific reporting for each stand-alone FGS project has therefore been separately prepared and passed to Scottish Forestry for their own internal use. A summary of the main extrapolated findings is detailed below.

5.3.2. Habitat Improvement - Designated sites

Thirteen of the seventeen FGS projects sites included within the Lot 2 assessment were either fully or in part subject to designations for habits and species. For a number of these it can be stated that overly ambitious targets were set covering too short a timescale, and statements made which were ostensibly unachievable over the term of the 5-year contract. This is particularly relevant for those sites covered by SSSI designation for woodland Qualifying Features.

One of the smaller designated sites located within Perth and Argyll, included within the FGS contract information that within the 5-year term of the plan the woodland will be '100% restored'. Although the scope of work has been evidently implemented throughout the site, there remains deficiencies in parameters which would enable full restoration to be accurately stated as a confirmed short-term outcome.

A SSSI designed woodland site within Highland region, which is now out with the term of the FGS 5-year period, had stated within its FGS contract information, that the main aim was 'the protection of the existing woodland from by browsing by promoting a new age-class within the woodland'. This project focused on using fenced enclosures to focus on the promotion of woodland regeneration, but the lack of seed trees within the enclosures and the resultant thick vegetative growth which has further established – predominantly bracken, has combined to present enclosed areas with very little natural regeneration, age-class diversity and considerable restrictions for further recovery. This site is a good example of a where project the capital outputs of the FGS have been implemented, but the timescale is too restrictive.

Although many designated sites are well on their way to achieving their stated goals improvement will continue to be slow and require on-going well-structured management and operational input.

5.3.3. Habitat Improvement – Un-designated Sites

Of the FGS projects with the focus on Habitat Improvement four were not subject to any corresponding designations for habitats and species, although Biodiversity Action Plan (BAP) Woodland priority habitat types were deemed applicable, with three falling within the Core Native Pinewood zone.

All sites within this category were focussed on R. *ponticum* removal via targeted funding. With operations considered critical in facilitating habitat improvement by preventing the spread of the invasive species within each site and also surrounding neighbouring woodlands.

All four of these stand-alone rhododendron target control projects were second phase having had previous grant-funded prior to FGS support.

5.3.4. Delivery of Capital Outputs

At all but one site within Lot 2, the scope of the corresponding capital operations included as part of the FGS funded option were found to have been delivered. However, the delivery and success of that delivery was assessed as being broad and assessed as being significantly dependent on the individual project. See also S.2.3.

For simplicity, and to enable structured reporting given the complex project specific mix of operations, detailed below is a summary of various relevant operations which have been implemented within the FGS sites covered by the delivery of habitat improvement measures.

5.3.4.1. PAWS Restoration

One PAWS restoration project located within Highland region was included within the assessment. The operations were focused on the removal of a non-native plantation, with all timber and arising being retained on site.

Given the restrictions presenting at this site, the approach implemented via the FGS, demonstrates a good example of pro-active woodland restructuring and enhancement, presenting overall recovery and naturalisation progressing, albeit slowly. Of further pro-active benefit applicable at this site was the recent planting of a new native broadleaved woodland creation project immediately adjacent, thus further expanding and protecting the native woodland resource and contributing towards habitat network expansion.

5.3.4.2. Rhododendron ponticum Clearance

In addition to those FGS projects which were focussed on R. *ponticum* control via targeted action (S. 5.3.1.2, above), six further sites, all of which are SSSI / SAC designated, included within their operational scope of output an extent of control measures as part of their habitat improvement. All FGS specified work was inspected as having been undertaken, but with variable results.

No site was found to have implemented full eradication, although this had been stated as an aim of the FGS.

The main finding in consideration of this operation is that although fresh seeding establishment were found overall to be minimal, given the timescale since the operations there remains areas on most sites where larger established plants are present and forming larger clumps.

At a site in Perth and Argyll, and one in Highland Region, the extent of control implemented can be deemed as being sufficient in consideration of the FGS requirements. However, the follow-on integrity of the SSSI upland oakwood may become rapidly compromised if further structure control is not implemented over the short-term.

5.3.4.3. Fencing

The construction of fencing as an FGS funded capital output has been used as a main component of working towards achieving habitat improvement. This operational output has been implemented predominantly as an aid to encouraging natural regeneration of native woodland and to promote age-class diversity as a means of habitat improvement.

As a jump start to facilitate measurable and accelerated enhancement, although considered intrusive and at odds with other land management aspects, and requiring continued monitoring and maintenance, the results of fencing are assessed as being generally positive. This is particularly so in terms of the first five years of a project.

The size and priority of the fenced enclosures applicable to those FGS projects included within the sample assessment can be deemed variable - ranging from very large, to small. Where the enclosures are larger, for example in several of the upland sites included within the assessment, and encompasses a mix of woodland structures, there is evidence of continued considerable evidence of continued deer browsing. This in part contributes to a reduction in the success of native trees regeneration establishment.

Success of the fencing as a main output in consideration of the overall projects aims and objectives is variable, being highly dependent on a range of parameters, particularly the size of the enclosures, the overall FGS area and the associated operations. As is widely appreciated, fencing on its own without phased further additional operations generally does not produce an overarching solution to habitat improvement over the medium and/or longer-term.

In the short term, the removal of excessive damage from browsing via fencing may enable natural regeneration to start to establish, particularly where the vegetative layer was depleted from previous intensive land uses. However, over time and without disturbance, the early regeneration is unable to further establish and is increasingly competing with vigorous bracken and heather growth.

Overall, the fencing inspected during the site visits was found to be remaining in good and secure condition at all. Signage where applicable was also found to be in place identifying that the area was subject to European funding.

The success of the use of fencing in combination with other operations was found to be good. At three designated sites where there was a suitable and adjacent seed source, fencing or stringent deer management had been implemented, and there had been managed ground disturbance to break up the underlying ground layer, the overall successes was evidently positive.

5.3.4.4. Exotic Tree Removal

The removal of planted non-native conifers at one site located in Highland Region as the main FGS operation associated with habitat improvement via PAWS restoration (S.5.3.4.1 above) was applicable at one site within Highland Region. The timber was mechanically harvested, and the resultant material stacked in fairly large and extensive habitat piles. The decay process will be slow, however there is well-developing structure diversity presenting over the site with a matrix of existing mature native broadleaves and secondary regeneration already established. This is supplying a sufficient seed source to assist in facilitating the next round of regeneration to establish, and therefore further adding to the positive age-class diversity.

This unique set of parameters is demonstrating a good example of woodland and in turn habitat restoration by considering the site-specific constraints and opportunities.

At a smaller site in Perth and Argyll, where removal of exotic conifers has also been implemented, the benefits presenting so far have been minimal. This is in part due to the removal being implemented by ringbarking, which although is evidently producing standing deadwood, it is not facilitating any further obvious benefits. For example, significant structure diversity and opening-up of the existing mature woodland areas where closed canopy predominates. This woodland is also not fenced and does have a range of other outputs associated with the SSSI. This site is also an example where over ambitious outputs over a short-term have been given.

5.3.4.5. Deer Management

The presence of deer throughout Scotland is a major factor in the progressive and sustainable management of native woodlands, and the habitats and species that they support. As widely recognised, unless deer numbers are maintained at a level where damage from browsing levels are low enough to enable regeneration to establish past the year one seedling stage, then any other focussed and combined operational output will not provide demonstrable benefits and habitat improvement.

Deer population numbers vary throughout Scotland, and the extent of how deer management are integrated into land use and management is also highly variable. Several larger FGS schemes included within the assessment sample implement deer monitoring and control via an approved Deer Management Plan. Success of the deer management, both previous and ongoing is variable, and dependent on many factors. It is important to identify that the reporting maintained herewith only touch on the overall issues.

Where deer management is implemented stringently with monitoring and review, the resultant outcomes can be more positive than where the management is less formalised or structured. Where there are complex competing land management factors however there can be blurring of success. This therefore demonstrates the importance of deer management whether fencing is used or not.

At a large site located in the upland Highlands, which is subject to SSSI designation for mixed Qualifying Features, and with a high deer population, a Deer Management Plan was included as part of the SMF. Although the FGS has ended, deer management is on-going and is collaborative over the corresponding Deer Management Group (DMG) area. At this site some enclosures were constructed via WIG and other areas of woodland left un-fenced. The main focus of the FGS, both SMF and WIG, was to reduce deer pressure to facilitate natural regeneration establishment. The site currently demonstrates variable results via the SMF and WIG – fencing, and further attention to progress to further is required operations implemented require to be further

5.3.4.6. Grazing

In addition to those FGS projects included within this assessment which were subject to specifically Woodland Grazing (Lot 3), three sites all located within Highland Region included within their operational scope of output the use of controlled grazing as a further tool to aid habitat improvement via FGS funding.

The assessed overall success of these three projects, which encompassed a range of operational output was found to be high, with the implementation of a varied range of operations. At all sites this includes the practice of very carefully managed grazing. This positive result demonstrates that land management and land stewardship are very important aspects in the proper delivery and achievement of all-encompassing aims and objectives.

5.3.4.7. Vegetation Removal

The targeted removal of ground vegetation was applicable on three FGS projects with the focus on habitat restoration. At a large site in Perth & Argyll bracken control extending to 4.8 ha, split over five smaller areas, was implemented during the term of the contract as a capital output. The operations did not however cover the entirety of the bracken presence which was assessed as being considerable over the site. The site visit confirmed that other than a slight reduction in density of bracken, the extent of overall cover remains and with no other resultant benefit from the implementation of the operations being evident. The FGS operational information stated that *'..bracken control was to allow for successful establishment of natural regeneration..*' this has not occurred, and very little regeneration is currently presenting.

At a large FGS project within Highland Region predominantly focused on habitat improvement, recent mechanical mulching of small areas of dense upland ground vegetation, namely rank heather, have been implemented. The results of these operations are already proving to be very positive with new growth of blaeberry and heather, in addition to establishing naturally regenerated seedlings presenting.

5.3.5. Previous funding

A further important consideration in the evaluation of the scope of the FGS projects is whether there had been previous grant-funding applicable to the site. Where this was most evident is on those sites which were focussed on R. *ponticum* control as a supplementary FGS target. Four out of the seven projects assessed were implementing a second, if not third, round of control, and in addition were continuing to implement operations currently.

Those sites where there was also a combination of fencing and controlled grazing, demonstrated a far more positive improvement in both the success of natural regeneration establishment and the development of varied age-class diversity.

The on-going and progressive sustainability of existing and mature woodlands, particularly those covered by SSSI designation has been stated as a main aim, both for the woodland and other features, where developing age-class and structure diversity is a focus. Improvement in this regard however was very limited, due to a mix of lack of substantial natural regeneration, due in part to an overring closed canopy structure and deer browsing. A site located within Perth and Argyll was an exception in this regard with considerable regeneration having established, but now in itself providing closed thicket canopy – an issue which may develop a threat of its own.

It is important to state that that the two larger sites as a result of their location, tenure and other land management objectives, do implement stringent deer management which evidently is demonstrating positive results. In addition, many of the scope of operational outputs are follow on phases from previous grant-funded projects, hence, developing on what has been initiated prior. As time has progressed, the speed of success has evidently accelerated.

From the considerations of main restrictions, deer browsing, combined with thick vegetation, be it either mostly rank heather or dense bracken, are deemed the main restrictions to progressive and sustainable habitat improvement. One site visited, situated within Highland Region has however been identified as an exception to this. The large project with multiple outputs demonstrating an example of where regular focus and carefully site micro-managed attention are producing positive results conducive to the continued restoration and conservation of nationally important habitats within Scotland.

5.3.6. Lot 2 - Assessed Ecological Benefits

Given the limitations of this study, whereby detailed ecological assessment of each site was not part of the scope, the benefits in relation to each of the corresponding FGS projects can only be identified and summarised from the visual walk-over assessment only.

The ecological benefits of either a single focused or suite of operations regarding habitat improvement are extensive, and this was evidently applicable in all the sites sampled and visited - albeit the extent of the benefit to date being highly variable.

For example, where R. *ponticum* control was the main focus the benefit is the reduction of spread of a highly invasive species enabling a gradual conversion to the correct habitat for that site and therefore the range of benefits for the species associated. R. ponticum can also act as a host plant for the disease *Phytophera ramorum* – therefore removal reduces the risk of potential spread onto susceptible trees.

Given that the FGS focuses on one main targeted issue, the results can be delivered fairly quickly. For example, at a site in central Scotland virtually full eradication of R. *ponticum* was inspected as haven taken place, and the extent of natural regeneration establishing as a result was very high - albeit mainly birch. It is noted however that some re-seeding is emerging, but also being suitably addressed.

5.4 Lot 3: Woodland Grazing

Seven FGS approved WIG / SMF projects were included within this assessment.
Table 3: Lot 3 – Statistics, below, provides a summary.

LOT		Number FGS	Size Ha	Age since FGS approval	Notes
Lot 3: Woodland Grazing		7	<50 1 51-100 1 101-500 5	6 – 8 years	5 projects located on coastal areas, 2 located on upland farms. 3 located within a SSSI/SPA 5 projects were follow-on from previous managed woodland grazings grant-funded schemes under SRDP. No woodland grazing plan remaining within the term of the FGS Grazing Management Plan term. 4 projects within Highland and 3 within Perth and Argyll

Table 3: Lot 3 – Statistical Summary

5.4.1. Lot 3 - Summary Findings

The FGS Woodland Grazing option provides funding which places a direct focus on maintaining and enhancing the overall condition of native woodland habitats which in turn assists in benefiting designated features or priority habitats such as the pearl-bordered fritillary.

All FGS projects sites sampled and visited were assessed as complying with the FGS contracted requirements and including the scope of operations of the corresponding Woodland Grazing Management Plans. It should be noted that no project sampled and assessed remained within the FGS 5-year contract term.

The over-riding conclusion in consideration of the sampled controlled woodland grazing projects assessed as part of the scope of this study is that the benefits of the controlled grazing regimes have been particularly advantageous to the woodlands, subject to each individual programme, with tangible results of varying degrees presenting in all sites.

As is well understood by all involved with implementing controlled woodland grazing management, a fine balancing is required to facilitate achieving the required results, and this requires a very good understanding of woodland grazing management.

5.4.1.1. Woodland Condition

The grazing regimes in all but one FGS site have been assessed as having maintained or enhanced the condition of the native woodland habitat. At an enclosed woodland site within Highland Region, evidence was observed of increased and unmanaged grazing being implemented within the woodland after the end of the managed grazing regime. It is worthy of note that for this project there had also been minimal specification detailed within the corresponding grazing plan, thus potentially a correlation between specific operational detail and habitat improvement.

5.4.1.2. Priority Habitats

All FGS sites visited, other than one, have maintained or increased the overall extent of priority woodland habitat where applicable, including the three sites which are subject to SSSI/SAC designation. One site located within Highland Region was assessed as being exemplary in its delivery of the FGS initiative and in achieving its stated aims and objectives.

5.4.1.3. Previous Controlled Grazing

Those five sites which had been subject to previous controlled woodland grazing management prior to the implementation of the FGS projects covered within this assessment were found to demonstrate more advanced results than those sites which were in their first phase of grazing management. In addition, for these long-term projects the evidence of on-going controlled grazing continuing after the end of the contract therefore demonstrates a commitment to the aims of the initiative.

Projects at this stage, after considerable years of managed grazing, are also demonstrating the woodlands reaching a different level of improvement. In many of these, natural regeneration was advanced, fringe habitats were being maintained for their stated purposes, and thus the overall benefits to a combination of objectives were being achieved.

Conversely, now that the projects which were included within this sample are no longer subject to the requirements of the FGS contracts, and where controlled grazing has not been continued, there is evidence presenting of deceleration in the progress of the overall aims benefits which were achieved during the term of the woodland grazing plans.

5.4.2. Lot 3 - Assessed Ecological Benefits

Given the limitations of this study, whereby detailed ecological assessment of each site was not part of the scope, the benefits in relation to each of the corresponding FGS projects can only be identified and summarised from the visual walk-over assessment only.

The ecological benefits of controlled woodland grazing are known to be wide ranging. these include, but are not limited to:

- increases in biodiversity enhancement for wide range of habitats and species, for example priority invertebrate species - pearl-bordered fritillary and the chequered skipper butterfly, and an increase in sustainable natural regeneration of native woodland tree species.
- Increase in native woodland natural regeneration.

5.4.3. Lot 3 - Other Assessed Benefits

With the implementation of controlled / managed grazing within woodlands, there are also a range of other benefits which may be deemed as an associated benefit. These include, but are not limited to:

- Providing grazing for farmed stock, often native breeds in a natural and sheltered location with herb-rich fodder which in turn assists with well-being.

- With considerable research and monitoring associated with the grazing management, detailed information on the condition and status of land management units is made available, which in turn assists in overall land and woodland management.

5.5. Other Findings

5.5.1. FGS Project Size and Tenure

Of the thirty-seven FGS projects chosen to be included within this assessment, the area of each site varied from 0.2 ha to over 5000 ha, (Tables 1, 2 and 3 above refer). Thus, to be able to summarise on the appropriateness of scale in relation to each FGS option is not considered a parameter which can be concluded upon with any substantiality within the scope of this study.

To deliver an accurate conclusion on the success of scale, an assessment comparing FGS projects like for like would be required, and this would also require to be directed at similar land tenure types.

To generalise however, for the larger FGS projects with a wide range of stated outcomes full delivery for ultimate success of all, particularly over the short-term, is not being achieved. The range of competing aspects to be implemented over a very short 5-year period may be too complex. This is particularly the case for designated sites.

Where a focus is placed on one output, for example managed woodland grazing control, this may have resulted in a potentially negative affect on other issues such as preventing the containment and expansion of invasive rhododendron. An example of this situation was found in a designated coastal project in the west Highlands where managed grazing has and continues to be implemented. The ongoing threat of rhododendron expansion may become a significant and increasing threat to the integrity of the woodland.

5.5.2. Tenure

The tenure of the thirty-seven FGS projects sampled to be included within this assessment varied. The tenure type ranges included:

- individual owners - mostly applicable to small and medium-sized stand-alone landholdings, either stand-alone woodland management units or small farms;
- small and medium-sized mixed land-use estates, predominantly for private use;
- medium and large commercial mixed farms and mixed land use estates; and,
- charitable and non-governmental organisations with conservation of habitats and species as the main focus.

5.5.2. Stewardship and Management

Of the thirty-seven FGS projects chosen to be included within this assessment, the overarching factor which would seem to highly direct the overall success of a project, whatever the size, scope of output and tenure, is the attitude and stewardship of the owner and the predominant land use of the landholding.

From a generalised perspective those FGS projects which were assessed as being the most successful to date, were those where the owners/managers were resident - whether estates or farms, living and working their landholdings. The size of the landholding, or the project, was not a deemed such an important factor.

Achieving a balance between managing the FGS's and integrating the landholdings overall aim and objectives over the short, but also the medium and long terms, was also found to be more positive for resident owners and managers. For example, farming of stock or commercial sporting.

Where an external managing land agent or woodland agent was involved with the FGS the success of integrating the woodland with other land management aspects, or the focussed delivery of the scope of outputs associated with the project, was found to be variable. Again, dependent on the range of outputs associated with the scheme – the more complex the outputs, the less overall success of delivery was in general being achieved.

5.5.2. Phasing and Follow on Projects

Of the thirty-seven FGS projects ten were follow on projects having been subject to previous grant-funded support for woodland improvement and management. In this regard all of these projects presented an extent of sustainable improvement and achievement towards their overall medium-term aims and objectives. This also was applicable for those sites which are subject to SSSI / SAC designation for either woodland only features or a mix of woodland and other habitats and species, and therefore subject to a further tier of regulated commitment.
Section S.5.1.4.3, above also refers.

6. CONCLUSION and RECOMMENDATIONS

6.1. Conclusion

This report, commissioned by the Forestry Development Team at Scottish Forestry, has made a sampled evaluation of specific grant-funded operations in line with a range of funded options available via the Forestry Grant Scheme covering schemes initiated during the period between 2014 to 2021. The focus being the practical delivery of operational outputs directed towards ecological and habitat conservation and improvement.

Thirty-seven approved FGS sites were chosen by Scottish Forestry to be included within the assessment, located throughout Scotland - ranging from 0.2 ha to over 5,000 hectares in size. The scale of the sample is therefore considered small in view of the amount of approved and implemented FGS projects within Scotland during the time frame specified.

The results and recommendations presented within this report therefore should be considered as a representative of the success of the FGS support initiative in its delivery of the various scope of outputs associated with those sites included collectively within the assessment only.

6.2. Recommendations

For each of the FGS categories and the corresponding options covered by the assessment implemented and presented within this report – Lots 1,2 and 3, recommendations are presented below.

All recommendations are the assessment of the report author in her capacity as an independent consultant commissioned to implement the assessment on contract to Scottish Forestry. Therefore, all statements presented have been made without bias or direction from any regulatory authority source.

6.2.1 Lot 1: Woodland Creation – Woodlands for Riparian Benefit

Within the scope of this assessment and based on the overall findings (Section 5.2 above refers), which outlined the substantial and solid success of the FGS woodland creation schemes with the targeted focus on riparian benefit, several specific recommendations are detailed below.

- Given the overall success of most of the projects included within the assessment, the overall profile of the availability of the option for targeted funding should be developed.

- There is considerable scope for expansion of riparian woodlands to aid landscape scale woodland expansion by increasing connectivity, and in turn by assisting in developing habitat networks. This could be particularly useful as an aid to link the many woodlands which have been subject to grant-funded over the last thirty to forty years. The overall success of the legacy schemes does vary, but all-in-all, the Scottish landscape is gradually becoming more wooded and by focussing on riparian margins, however small, ostensibly the gaps can be gradually assisted in being 'filled' in.

- Further woodland creation schemes on a phased longer-term programme using the riparian margins as the basis for expansion. Projects do not necessarily require to be large, but will gradually expand the habitat networks, and provide a seed source for further natural regeneration.

- There is considerable potential for directing support for riparian woodland as part of agroforestry, farm woodland diversification and expansion initiatives and projects. Uptake of the option would be very suitable for all sizes and types of landholdings, whether it be small stand-alone projects on lowland farms, or as part of larger upland projects where there is a matrix of riparian zones.

- Where the riparian margins are associated with PAWS, a positive and priority action would be the focus on restoration.

- Where the site conditions are suitable, there should be focussed consideration of the further use of productive broadleaves on fertile sites where they can be planted and established at close spacing, in an intimate mix with other native mixed broadleaves at variable/low density stocking.

- Increased partnership working on a landscape and catchment management scale should continue to be a main priority when considering the importance of riparian woodland conservation and expansion. A targeted approach to raising the awareness of how small areas of woodland located on riparian margins, however small, can be extremely valuable. For example, the implementation of riparian woodland expansion in the form of focused longer term management plans – incorporating neighbouring ownerships and full river catchment coverage.

- In considering alternatives routes to assist with woodland creation and habitat restoration, the focus on riparian woodlands has great potential. Riparian margins are widespread, interlinked, and not just related to being associated with rivers and burns. There are also lochs, both freshwater and sea, which host many areas of remnant and quite often very diverse native woodlands. All sizes and locations of riparian woodland should be given focus. An example is islands located within freshwater lochs – with often reduced pressure from man, deer and stock, small pockets of rich habitat remain. An example of this can be seen in the north-west Highlands where considerable and large islands host mature and veteran mixed native woodland.

6.2.2 Lot 2: Habitat Improvement

Within the scope of this assessment the overall findings corresponding to directed support for habitat improvement, both in designated and un-designated sites was found to be very variable, Section 5.3.1 above refers.

Should more specific analysis be required subsequent to the delivery of this report it is recommended that further research is implemented with FGS projects sampled and assessed in consideration of habitat improvement. This would provide a more specific assessment of projects with similar parameters and enable direct comparisons.

Detailed below are a number of recommendations, both generally and more specific.

6.2.2.1 Scale and Timing

It is a main finding over this study that overly ambitious targets are being set for too short a timescale, particularly for those sites covered by designations. As such the focus requires to be re-addressed and realistic targets set.

The scale of targeted work was found in many cases to be too ambitious. Again, scaling down may be the best route to follow, whereby smaller projects can be monitored, reviewed and managed in a more manageable and ultimately constructive manner.

The smaller the project, with fewer ambitious targets in striving to achieve those targets, the less overwhelming the overall task may be. Although the extent of results may be initially comparatively small, the ultimate achievement is solid and can be added to in a positive manner.

6.2.2.2 Competing Factors

It is somewhat difficult to provide direct solutions to addressing the issue of habitat improvement when there are a range of complex competing factors, particularly when it is at a larger scale. Each site requires to continue to be assessed on its own with targeted solutions developed on a site-by-site basis.

Given the range of complex issues applicable with designated sites and the effort to balance a range of outcomes, it is suggested that focus be on one output at a time, with priority given in association with the scale of the threat.

To achieve this, there also requires to be significant and directed focus on regular monitoring of each site at a micro level, with feedback of the results to all who have an interest in the woodland. Of those sites included within the assessment that already implement this approach, the resultant success of habitat improvement was particularly evident.

6.2.2.3 Vegetation Removal

Thick and established ground vegetation, particularly where deer exclosures have been used, is deemed one of the main limiting factors in preventing successful new natural regeneration as a component of habitat improvement operations. Bracken particularly was found to be restrictive within the broadleaf dominant woodlands, with heather more dominant in the upland sites.

Although the sample of FGS sites included within this assessment was fairly small and widespread across Scotland, at those sites where the vegetation had been controlled and was continuing to be being maintained the overall improvement and benefit to the habitats was particularly positive. It is imperative therefore that expansive and restrictive vegetation removal be prioritised and integrated as part of early stage phased operational output.

Given the success of the various controlled woodland grazing projects assessed, and the restrictions on the use of chemicals for bracken treatment, the specific targeted focus of woodland grazing is recommended as a non-invasive and effective means to tackle the issue.

Where heather is dominant and inhibiting regeneration of trees, including slower-growing Scots pine, a further recommendation is the implementation of discrete areas of mechanical mulching. Although expensive and time-consuming, the resultant improvement in the habitat by facilitating the establishment of field layer plants such as blaeberry, in addition to providing a seed bed for young trees is deemed highly positive.

6.2.2.4 Age-class Diversity and Stand Structure

The lack of stand structure remains a limiting factor in the constructive rehabilitation of mature and senescent woodlands, and particularly for those covered by SSSI designation.

As a standalone output the effectiveness of operations to address the problem requires to be included as part of a programme of wider management planning to aid habitat improvement.

Addressing the overall age-class diversity and woodland structure should continue as a priority within mature and senescent woodlands. In this regard, it is recommended that there is an increase in small-scale felling throughout currently closed-canopy woodland areas. By forming a matrix of clearings, light to the ground layer will be increased and will assist in facilitating regeneration to establish. Although the operations do require to be in accordance with other associated management, including deer control and targeted vegetation removal.

At those sites which are now demonstrating good recovery, with considerable regeneration of especially pioneer species such as birch, there also requires to be a secondary stage of operational input with thinning and clearing to continue to assist in further naturalising the woodlands.

Although potentially controversial and could be perceived as overly destructive, it is recommended that where possible, a confident approach is made to improving woodland structure via tree felling of mature trees within native woodlands, including designated sites. Over time, the benefits of producing clearings, in association with other operations, will counteract the initial loss and provide long term and sustainable habitat improvement.

As part of the development of further programmes of combined operational output, there also requires to be attention directed towards the removal of any non-native tree species regeneration where may becoming more established. This type of operations could be combined with vegetation removal operations as one package.

6.2.2.5 Fencing and Deer Management

Fencing of woodlands as a first stage in implementing habitat improvement measures continues to be widespread, and a valid method of initiating progress to achieve an individual projects stated and specific aims and objectives. Section 5.3.4.3 above refers.

It remains a recommendation of this assessment that sensitively designed fencing requires to continue to be used as a main deterrent from the damage caused by large herbivore browsing. Further focus, however, requires to be directed towards the operation, and in consideration of individual project parameters. In this regard, and in consideration of the findings set out within this study, large fenced exclosures do not generally produce equitable positive results in line with robust habitat improvements. Large tracts of fencing infrastructure can result in significant deer displacement, and extensive lengths can be costly and difficult to monitor and maintain. It is therefore proposed that the following approach be considered:

- smaller areas of fencing be used rather than large areas to enclose the most fragile woodland habitats and facilitate more manageable enhancement operations.
- Implementation of phased fencing when dealing with large sites, using fencing management plans – potentially covering periods of 20 years plus, and prepared in line with deer management plans.

6.2.2.6 Partnership and Collaboration

It is clear from the results assimilated as part of the assessment presented within this report that where FGS projects, particularly the larger ones, are managed and implemented in partnership or collaboration with other neighbouring landholdings and other organisations, the extent of progress may be considered as being more robust.

6.2.2.7 Targeted Support for Rhododendron Control

There requires to be diligence regarding the presence and expansion of R. *ponticum.* There is the potential for the expansion of this invasive plant to continue to become a significant problem, and therefore a potential threat to the overall ecological status of the woodland sites - particularly those designated as SSSI. Where sites are designated, and there is a residual or expanding R. *ponticum* presence with regenerating plants becoming seed bearing, operations to aid control should take priority over other habitat improvement operations.

Generally, the implementation of WIG targeted R. *ponticum* control for those projects sampled and inspected as part of this assessment was found to be positive. However, it is a main recommendation that further follow-on control should be encouraged and implemented via further funding support.

Most sites visited had implemented further control measures post FGS, with demonstrable positive results in the overall condition of the sites. It is crucial however, that the positive results achieved from previous operations are not negated. The momentum absolutely requires to be maintained to prevent deterioration. It is recommended that any site which has received previous support should be given priority.

To facilitate the continuation and the uptake of further control, it is a firm recommendation that financial support is available to implement survey and additional monitoring. This is particularly relevant for those sites where significant effort and funding has been previously allocated. Thereafter the results being used to prepare new Rhododendron Management Plans, with details on targeted action for a further 5-10-year period.

Where there remains a considerable presence of R.*ponticum* it is suggested that the focus should continue to be on containment rather than full eradication, particularly in consideration of first phase control programmes.

6.2.3 Lot 3: Woodland Grazing

Within the scope of this assessment and based on the overall findings (Section 5.4 above refers), which generally outlined the positive outcomes resulting from the implementation of FGS Sustainable Management Forests Woodland Grazings, various recommendations are detailed below.

- Given the success of controlled woodland grazing as demonstrated by those FGS projects sampled and inspected as part of this assessment, integration of the practice as a component of wider woodland management plans directed specifically at habitat improvement should be prioritised.

  A main finding in aiming to accommodate all aims and objectives for any particular site was found to be the lack of a suitable seed bed for new natural regeneration to establish. Woodland grazing, managed appropriately and carefully, has evidently demonstrated how successful it can be when implemented in conjunction with deer management and / or fencing. Controlled woodland grazing has demonstrated that robust regeneration can establish without compromising other potentially competing priorities, such as maintaining habitats for other priority species.

- The more advanced habitat improvement was evident on those sites which been subject to managed grazing for many years. In this regard, it is recommended that subsequent follow-on managed grazing regimes be implemented with appropriate financial incentives but also targeted assistance with the preparation and deliver of the programmes.

- Regarding scale of controlled woodland grazing, given the complexities of the aspects of implementing and managing controlled grazing regimes, it is recommended that projects should not be over-ambitious, and that the implementation of small projects would be the preferred regarding scale. This would also aid the complexities of management involved and the cost.

7. FURTHER DISCUSSION

The detail covered within this report, although covering only a relatively small sample of Forestry Grant Scheme (FGS) projects implemented during the period 2014-2021, has supplied Scottish Forestry with an overview of the applied and current funding support mechanism supporting woodland creation and habitat improvement within Scotland.

In consideration of all the factors applied, which included a considerable extent of variability, the results of the various categories and support available via the FGS are, as concluded as part of the commissioned instruction, deemed overall positive.

What requires to be kept to the fore for all of us working in the present and planning for the next steps, is that significant progress has been made over the last forty years or so, with every regulated and targeted support mechanism has presented its own benefits, but also failures. However, it is both those benefits and failures which have enabled progress.

Each fiscal support mechanism, from the early days of Woodland Grant Scheme (WGS) 1 during the 1980s, the following WGS 2 and 3 versions available during the 1990's and early 2000s, through to Rural Development Contracts (RDCs) and then Scottish Forestry Grant Scheme (SFGS) have delivered progress in various forms and at various levels of success. What has been completely positive is that at every iteration of support made available, the results of the preceding policy initiative have been used to develop the next stage. In this regard, the application and implementation of the FGS is no different.

As a component of the Scottish Rural Development Programme, the FGS has required to deliver a very wide range of parameters - this therefore can be deemed a positive in addition to a negative. The initiative has taken to the fore the requirement for trees, woods and forests to form part of wider ecosystem, landscape-scale and in turn integrated land management. Conversely, however, the ambitious scope of outputs and targets set could also be deemed limiting. When a target is not met, this can quite often be seen as a failure - but little steps added together can, and do, produce solid and long-standing results.

The recovery of Scotland's extremely special natural resources, of which trees and woodlands, and the unique habitats and species they support, is taking place. It is a slow process and to expect, or in fact believe, we should be able to deliver a complete turnaround within the period of a few years, or even decades, is not realistic. It is going to take many decades and hundreds of years to completely reverse the negative effects of how we have previously lived and worked in Scotland.

- Let's keep positive and keep delivering progress.

- Let's build on the extensive, and often impressive, improvements already made resulting from previous fiscal support mechanisms for conserving and enhancing Scotland's habitats and species.

- Let's work macro – think big – working in collaboration and partnership by increasingly focusing on ecosystem and landscape scale management.

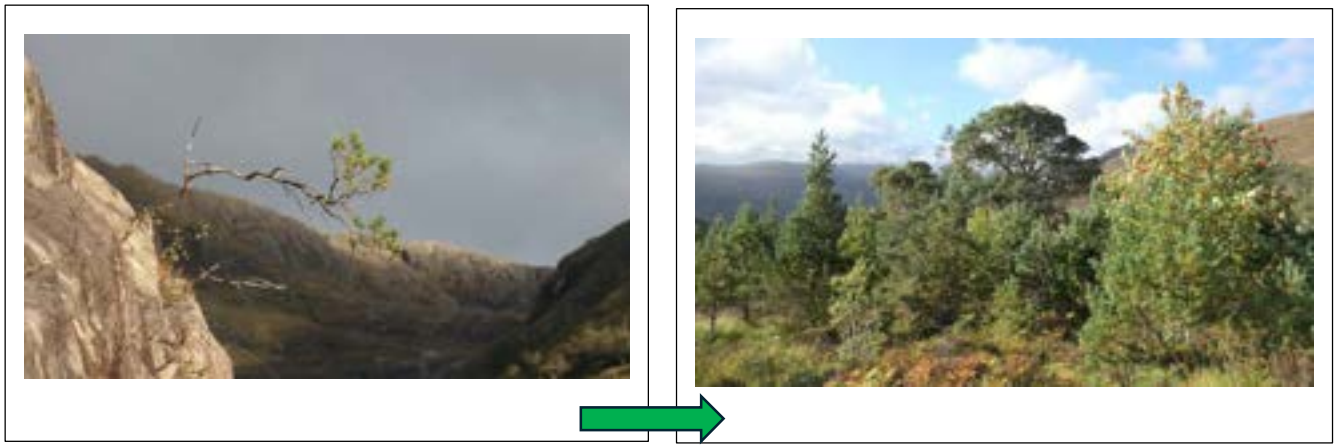
  But, also let's focus on the micro – focus on the small-scale. It is evident that small-scale woodland and habitat management can produce quick and sustainable success. By targeting corners of farms, crofts and smallholdings; riparian margins of all sizes and types; isolated pockets of remnant and veteran priority habitats; wooded islands, coastal fringes, and upland tree line margins, the expansion and very long-term restoration will be facilitated.

- Let's also revisit those legacy schemes, take stock, and provide incentives to bring back into constructive longer term management planning. The money has been previously spent, the work has been done, and although overall results may be variable there has been progress. There is scope for delivering adjacency projects, to integrate natural regeneration with woodland creation, to use riparian margins as a focus – as the artery for habitat network expansion.

- Let's therefore aim to build on what has already been implemented over the last forty plus years by planning to focus on habitat networks - filling in the gaps.

- Let's remember that Scotland can become wooded again, the land has a 'memory', and this can be demonstrated in how after often after a slow start in the recovery of a certain location, once the trees 'remember' the acceleration of successful establishment increases at pace.

Let's go from this.. ***to this….***



The implementation of regulated and targeted support, developed over many years, is now producing tangible results and has prepared a solid foundation for building upon and taking the sustainability of our natural resources to the next level.

Let's therefore keep positive, continue to take those little steps, building on what has already been set in place, and think big over the short, medium, and crucially, the longer term.

8. REFERENCES and BIBLIOGRAPHY

- Forestry Commission Practice Guide (2006): Managing and Controlling Invasive Rhododendron
- Forest Research (2024) - Ecological Site Classification (ESC)
  Available at https://www.forestresearch.gov.uk/tools-and-resources/fthr/ecological-site-classification/
- Wohlleben.P (2015)- The Hidden Life of Trees (William Collins)
- NatureScot (2024) – Sitelink
  Available at https://sitelink.naturescot/home
- NatureScot (2024) – National Designations
  Available at
  https://naturescot/professional-advice/protected-areas-and-species-areas/national-desigantion
- Scottish Government (2024) – Rural Payments and Services – Forestry Grant Scheme
  Available at https://www.ruralpayments.org/topics/all-schemes/forestry-grant-scheme/
- Scottish Forestry (2019) - Scotland's Forestry Strategy 2019-2029
  Available at – https://www.forestru.gov.scot/forestry-strategy
- Scottish Forestry (2024)- Woodland Grazing Toolbox
  Available at https://www.forestry.gov.scot/woodland-grazing-toolbox
- Scottish Forestry (2024) - Scottish Forestry Map Viewer,
  Available at https://scottishforestry.maps.arcgis.com/apps/webappviewer
- Scottish Forestry (2019): The Forestry Grant Scheme – A guide to grant options for woodland creation
- Scottish Forestry (2019): The Forestry Grant Scheme – A guide to grant options for existing woodland owners