Re-wooding the River Calder – Spey Catchment Initiative

BCF Project Reference : 501348

This project is supported by the NatureScot Biodiversity Challenge Fund.

1. Project Summary

The aim of this project is to establish up to 15ha of riparian woodland along 3.5 km of the River Calder, an upland tributary of the Spey (SAC), by installing deer fencing to remove grazing pressure, planting with native tree species and encouraging natural regeneration. The benefits will include new riparian woodland habitat, and improved in-river habitat and water quality for salmonid fish and other aquatic species. The woodland, a nature-based solution, will mitigate against the predicted impacts of climate change by helping to control water temperature by shading, providing natural flood management benefits and sequestering carbon.

Strategically located areas of riparian woodland will be created along both banks of the River Calder and a short distance up the Allt Fionndrigh tributary, re-wooding riparian areas which are currently largely bare of trees and shrubs. There is a seed source nearby from patches of birch-dominated woodland on the slope on the south side of the glen and some small existing woodland schemes set back from the river.

Habitat connectivity will be hugely improved by forming woodland links between isolated areas of existing woodland to create a woodland corridor along the river, and helping to link the upper glen with the more wooded gorge section in the lower glen. The riparian woodland will also complement the landscape scale woodland expansion across the wider glen and restructuring of existing conifer plantations which is currently being separately progressed by Glenbanchor Estate.

SCI delivered a linked project in August 2020 which involved installing around 30 Large Woody Structures (LWS, whole felled trees with root plates attached) along most of the reach of the Calder being re-wooded. The LWS are intended to improve in-channel habitat diversity and quality and have already resulted in deposition of new areas of spawning gravels where salmon redds have been recorded. Establishment of riparian woodland will ensure a sustainable supply of natural dead wood into the system in future. The complementary outcomes of the two projects together should achieve significant habitat and biodiversity improvements.

Upper glen showing lack of riparian woodland.

Mid section showing seed source on south bank.

2. Project Delivery

2.1 Pre-construction
Project planning commenced in December 2019 and plans were developed through detailed discussion between the agents for landowners Pitmain and Glenbanchor Estates Ltd (north bank) and Cluny Estate (south bank), woodland agents Cawdor Forestry Ltd, and the Spey Catchment Initiative (SCI). Common objectives, the scope of the project and roles of each partner in management and delivery were agreed, and woodland plans were drawn up by Cawdor Forestry, complying with the UK Forestry Standard and all other relevant forestry policy and guidance. Scottish Forestry approval was granted. As the site is an SSSI, consent was obtained from NatureScot. Landscape, public access and archaeology advice were obtained. Surveys were carried out for peat depth, birds, protected species and archaeology. Public consultation was undertaken.

Detailed discussions were held with estate staff to ensure that requirements for sporting, deer control and farming activities were taken into account. This liaison was continued throughout the delivery phase.

Three separate fenced enclosures were planned, each straddling the Calder, with water gates installed at each end. This was chosen as the most efficient design in terms of maximising the area of woodland in relation to length of fence, and will allow trees to grow right up to the water line where ground conditions allow. The separate enclosures allow gaps for deer movement, essential for deer management by the estates and deer welfare. Once

the woodland is sufficiently established, and depending on levels of future grazing pressure in the glen, the intention is to gradually remove the fencing.

2.2 Construction
Following competitive tendering, Highland contractors Taiga Upland Ltd were engaged to provide fencing and ground preparation. Works commenced in October 2021.

Three deer fenced enclosures were constructed to exclude deer, sheep, hares and rabbits from riparian zones totalling 37 ha (see map appended). The fences were marked to avoid bird strikes, rabbit-netted and fitted with extra stays to be resistant to harsh weather conditions. In some sections lengths of sound existing fence were upgraded, and redundant deer and stock fencing was removed. Pedestrian and vehicle access gates were installed. Water gates were constructed to a robust design with metal stantions on concrete bases supporting suspended sections of alkathane pipe at 5" spacing across the river. Where flooding is likely, swinging flood fencing sections were installed to the side of the water gates to reduce the risk of flood damage.

Allt Fionndrigh confluence in high flows.

Section of deer fence showing bird strike marking and gates.

Water gate.

Flood plain swing fencing adjacent to water gate.

2.3 Planting
Ground preparation (inverted mounding) took place in early March 2021 in accordance with a carefully considered planting plan, taking account of soil conditions, wet/dry areas, etc. Species rich grassland was avoided and open areas were retained adjacent to shingle banks on the river to ensure open habitat for some rarer invertebrate species. Planting was designed to replicate natural woodland with a mosaic distribution of variable densities and clumps of single species in places.

Tree seedlings of native species and appropriate provenance were supplied by the Woodland Trust and were hand-planted in late March over a total area of 11ha. In addition to planting, 3-4 ha of natural regeneration of trees and shrubby vegetation is expected originating from existing nearby seed sources.

Tree species	Number	%
Alder	1300	8.4
Aspen	750	4.8
Downy birch	7000	45
Bird cherry	450	2.9
Sessile oak	750	4.8
Rowan	1500	9.6
Scots pine	1750	11.3
Eared willow	2000	12.9

Inverted mounding in Section 1.

Newly planted tree seedling close to water edge.

3. Outputs

Output	Quantity
Length of new deer fence	5,500m
Length of upgraded fence	920m
Length of redundant fence removed	1760m
Number of access gates	13
Number of large water gates (Calder)	6
Number of small water gates (Allt Fionndrigh)	1
Area enclosed (total)	37 ha
Area planted (approx.)	11 ha
Number of trees planted	15,500
Estimated area of potential natural regeneration	3-4 ha

4. Interpretation, publicity and outreach

An interpretation panel has been designed, manufactured and installed at the walker's car park at the main public access point to the glen. The interpretation explains the reasons for the woodland creation and necessity for the deer fencing during the establishment period.

As it has progressed, the project has been publicised via social media (SCI and partners), local and environmental/fisheries sector press coverage, and guided site visits. A short video has been produced to promote both the re-wooding project and the LWS project, and a second film with more focus on the new woodland is in the planning stages. It is anticipated that publicity will be on-going for a number of years, and that the project will form a useful case study for others engaged in catchment management and riparian woodland expansion.

All interpretation and publicity has acknowledged the support of the NatureScot Biodiversity Challenge Fund and has included the NatureScot logo, social media links and statements in accordance with the BCF guidance.

5. Monitoring
On-going monitoring to measure the impact of the project includes:

- Electro-fishing
- Salmonid redd counts
- Macro-invertebrate surveys – 4 sampling sites
- Water temperature – 2 continuous temperature loggers installed at upstream and downstream ends of project reach
- Aerial visual/ground cover surveys
- Photographic records
- Dipper surveys – annual x 2 (volunteer)

Interpretive panel at walker's car park.

Macro-invertebrate sampling in the River Calder.

6. Fulfilment of aims and outcomes
The project has been delivered on time and close to budget. There were some minor adjustments to the original proposal in response to estate staff requirements, and suggestions based on the expertise and experience of the woodland agents and contractors as the work progressed.

Changes as the trees grows up and regeneration occurs will be revealed by monitoring of various parameters as above. However, achievement of the long term aims and objectives will only be apparent over a period of up to several decades as the woodland establishes and the benefits to biodiversity and climate change resilience are realised.

7. Challenges
The main challenges in delivery were delays to fencing and water gate construction due to the particularly severe winter conditions limiting activity at this upland location, and supply chain issues partially due to Brexit. The contractors and woodland agents were able to overcome this through re-scheduling some activities and intensive effort in the final few weeks.

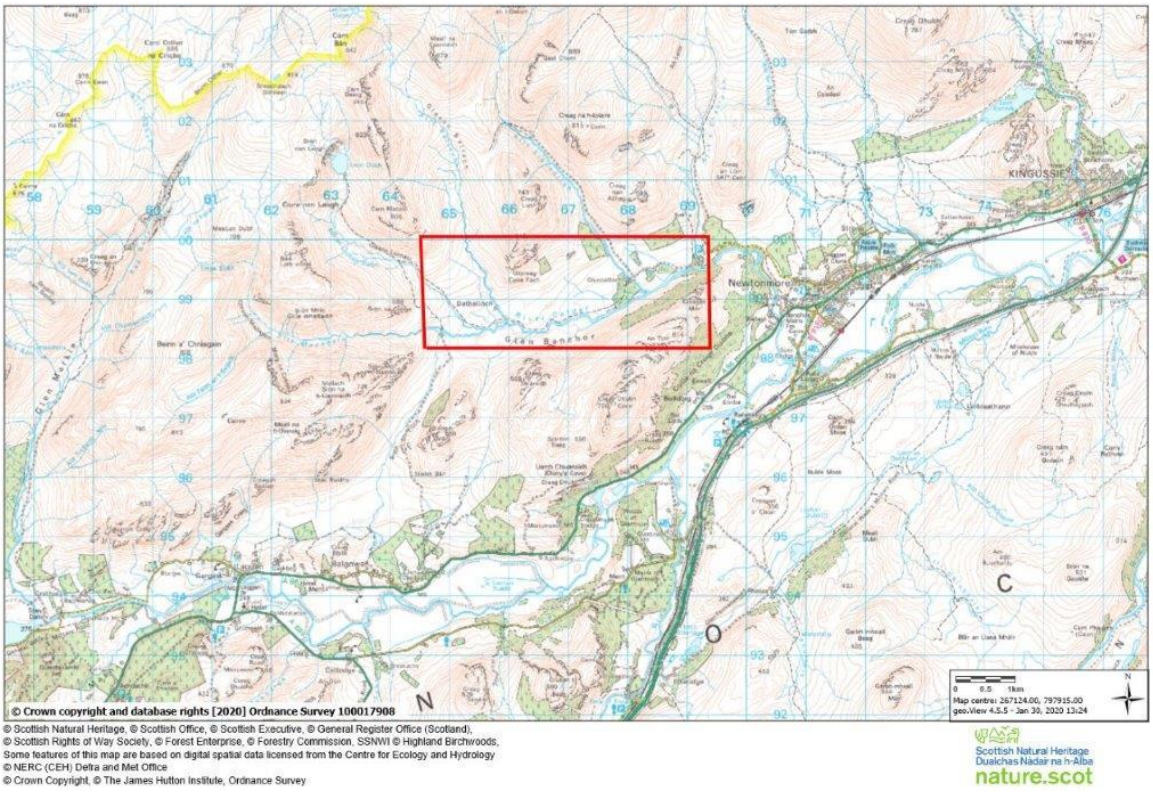
Construction of the water gates and adjacent flood plain fencing needed to take account of the spatey nature of the Calder, with frequent high flows and considerable sediment load. After full consideration the specification was upgraded to deal with this challenge as robustly as possible. This did result in increased costs which were judged to be acceptable to ensure the longevity and effectiveness of the enclosures.

With thanks to Pitmain and Glenbanchor Ltd, Cluny Estate, the Woodland Trust and all other partners who made this project possible.

Penny Lawson, SCI Project Officer, April 2021.

Location of project

River Calder project location



Map of finalised woodland scheme