Forth Climate Forest

Communities - Canopy - Connectivity - Carbon

Baseline Report

Recording the background, aims and starting position for the Forth Climate Forest at October 2023

University of Stirling
Woodland Trust Scotland
Scottish Forestry Coilltearachd na h-Alba
Clackmannanshire Council
Falkirk Council
Stirling Council
Loch Lomond & The Trossachs National Park

Contents:

1.	Purpose of report	page 3
2.	Forth Climate Forest Overview	page 3
3.	Policy Context and Relevance to Partners	page 3
4.	Forth Climate Forest Aims and Objectives	page 4
5.	Carbon Baseline Analysis and Targets	page 5
6.	Connectivity Baseline Analysis and Targets	page 6
7.	Canopy Baseline Analysis and Targets	page 7
Appendix 1.	Relevant National and Local Strategies to the development of the Forth Climate Forest	page 9

1. Purpose of Report

This report describes the aims and objectives of the Forth Climate Forest (FCF) initiative, as they were originally conceived, and provides some detail on the baseline levels of forests and woodlands, canopy and connected woodland habitats across the Forth Valley, prior to the FCF being launched.

2. Forth Climate Forest Overview

The FCF Initiative was created in response to the Climate and Ecological Emergencies, with its overarching purpose being to help deliver a substantial increase in tree planting across the Forth Valley Area.

The FCF was developed as a partnership initiative, with the key partners being Woodland Trust, University of Stirling, Scottish Forestry, Clackmannanshire Council, Falkirk Council, Stirling Council, and Loch Lomond and the Trossachs National Park Authority.

The University of Stirling offered to fulfil the critical role of "host" organisation. This created a home for the initiative within Scotland's International Environment Centre, a route to employ the FCF team and an organisation that, amongst other key functions, could administer the various different funding grants.

The concept of the Forth Climate Forest was developed during 2022 and funding confirmed from the Woodland Trust's Emergency Tree Fund (ETF) in December 2022. Further funding from Scottish Forestry, Clackmannanshire Council, Falkirk Council, Stirling Council and University of Stirling was secured in early 2023, providing sufficient resources to kick start the initiative and enlist a small FCF team for 2 years.

Through working in partnership, the FCF will work strategically to add value to the work of those organisations already acting to increase the delivery of new trees, woods and forests within the Forth Valley Area (FVA). It will provide direction, focus and co-ordination to tree planting within the FVA.

3. Policy Context and Relevance to Partners

The policy landscape in 2021 / 22 supported the concept of a Forth Climate Forest. A regional tree planning initiative, aimed at delivering positive outcomes against the twin crisis of climate change and biodiversity loss would align closely with a number of national and local strategies and policies, such as the National Planning Framework 4, Forest and Woodland Strategies and Biodiversity Strategies. A more comprehensive list of these strategies and policies is provided within Appendix 1, with links to the full documents.

Perhaps most significantly for Clackmannanshire Council, Falkirk Council, Stirling Council and the Loch Lomond and Trossachs National Park Authority, the FCF provides a means to deliver the requirements of NPF4, by:

1) Protecting and expanding forests, woodlands and trees.

2) Protecting biodiversity, reversing biodiversity loss, delivering positive effects from development and strengthening nature networks.

The FCF will also create opportunities for the partner organisations to:

- Deliver their economic, social and environmental aims.

- Make the FVA more resilient to the impacts of a changing climate, helping to achieve 'Net Zero,' and repairing our damaged ecosystems and adapting the built environment to create more liveable places for the future.

4. Forth Climate Forest Aims and Objectives

The initial aims for the initiative (as detailed in the ETF application) were described under three thematic areas of activity which aspired to the achieve the following by the end of a 10-year period:

Carbon	Expand the forest and woodland area across the FVA each year by 820 ha (on average), to achieve a 3% increase in woodland cover, resulting in 25% of the FVA being forest or woodland.
Connectivity	Create sufficient woodland habitat connections across the FVA to achieve a 20% increase in the average woodland habitat network area.
Canopy	Achieve an average canopy cover for the urban areas of the FVA of 20%, and increase of 5% from the baseline figure of 15%.

Additionally, the following 2-year targets were identified:

Political 'Buy-in':	Attract strong support and buy in from Council Leaders and Chief Executives for the project. Ensure this support is publicly demonstrated, facilitating discussions across all council departments and catalyse action for project delivery.
Increase urban tree canopy:	Increase the tree canopy in 12 locations of low cover, (4 per council area) delivering climate change (and other) benefits.

Native woodland creation:	create 30 connections between the existing woodland habitat networks, contributing to a contiguous woodland habitat network through the region, thereby providing a migration route for woodland reliant species in the face of climate change.
Tree planting at scale:	encourage and facilitate the planting of 1200 hectares of new forests and woodlands.
Promotion for Investment:	Promote the FCF vision to national and local politicians, organisational leaders and potential investors (both businesses and private individuals.)

5. Carbon Baseline Analysis and Targets

The National Forest Inventory for Scotland provides the most up to date data for recording the extent of woodland cover for the Forth Valley (FCF) Area.

The National Forest Inventory (NFI) woodland map covers all forest and woodland area over 0.5 hectare with a minimum of 20% canopy cover, or the potential to achieve it, and a minimum width of 20 metres. This includes areas of new planting, clearfell, windblow and restock. Woodland less than 0.5 hectare in extent, will not be described within the dataset but will be included in a separate sample survey of small woodland and tree features.
The total combined area of Stirling, Clackmannanshire and Falkirk is 273,086 hectares with a recorded, combined existing woodland cover of 60,693 ha. This gives an overall woodland percentage cover of 22%. (The total combined woodland cover was taken from the 2021 NFI dataset, which was the most up to date information available at the inception of the FCF.)

Scotland's Climate Change Plan target is to achieve a 3% increase in woodland cover across Scotland by 2032. To achieve this increase in woodland cover (of 3%) within the FVA would amount to planting an additional 8,200 hectares, over 820ha per year for 10 years. Expressed as individual trees, the target would be approximately 16.4 million trees over 10 years.

10-year Carbon Target

- **Increase woodland cover by 3%, from 22% to 25%**
- **By planting 8200 ha of new woodland**
- **Or 16.4 million trees**

6. Connectivity Baseline Analysis and Targets

Data from the National Forest Inventory indicates that there is at least 2170 ha (Stirling and Clacks) and 1100 ha (Falkirk) hectares of broadleaved woodland habitat in the Forth Valley Area. However, through urban development and agricultural land use, these woodlands are not well connected, placing them and the biodiversity that relies upon them at risk from further erosion through local extinctions, development and a changing climate.

Much of the FCF existing woodland networks have already been analysed, and the connectivity opportunity areas have been identified through NatureScot's CSGN Habitat Networks and Opportunity Areas analysis:
(https://snh.maps.arcgis.com/apps/webappviewer/index.html?id=75dbd52f8b634df0b6bb73fc082de63d)

This analysis identifies 222 target opportunity locations to reconnect woodland habitats. As this network analysis looked at the CSGN area (Central Scotland Green Network) it only covered the boundaries along the National Park and also excluded the northern part of Stirling Council area. At the time of the FCF inception woodland habitat opportunity mapping for the LLTNP and the furthest northern extent of Stirling Council area had not been completed.

Prior to the launch of the FCF the University of Stirling commissioned Forest Research to identify where woodland planting would create connections that provide a climate-resilient migration route for woodland species from the South of the FVA to the North, enabling regional scale migration route planning in the FCF, which will also dovetail with that being delivered in the Clyde Climate Forest (CCF) to the southwest. Critically, this integrated landscape-scale planning will ensure the continuity of South-North and East-West migrational pathways spanning Central Scotland.
65 specific locations were identified where key gaps are present in this network.

Further details on this analysis and findings can be found within the following story map:
FCF Woodland Connectivity (arcgis.com)

10-year Connectivity Target

- **Increase area of connected woodland habitat networks by 20%**
- **By creating 60 new woodland connections**
- **Which expands the area of broadleaf woodland habitat from 2270ha to 2724ha**

7. Canopy Baseline Analysis and Targets

Canopy cover is a useful indicator of the extent of tree presence across a town or city and the range of ecosystem services delivered by trees to the inhabitants. The benefits provided by trees urban environments is well documented and includes:

- Reducing temperature extremes
- Reducing heating / air conditioning costs
- Improved air quality
- Water absorption and infiltration
- Increased house & property values
- Increase biodiversity
- Increase general wellbeing

Areas with low canopy cover are therefore at greater risk to flooding, heating, poor air quality, reduced biodiversity and generally poorer health outcomes for inhabitants. Areas with low canopy cover will also be less able to adapt to the effects of climate change, meaning inhabitants of these areas will experience greater harm from climate change.

Using the iTree Canopy tool the baseline, mean urban canopy cover for the principal urban areas in each of the 3 local authorities was estimated to be:

- Clackmannanshire 16.4%
- Falkirk 15.2%
- Stirling 15.4%

Stirling Council's stated targets are broadly in line with the aspirations of Clackmannanshire and Falkirk in recognising Forest Research's recommendation of a minimum tree canopy cover of 20% for urban tree canopy cover. (https://www.charteredforesters.org/wp-content/uploads/2019/01/Doick-et-al_Canopy-Cover-of-Englands-Towns-and-Cities_revised220317_combined.pdf)

Prior to the launch of the FCF, University of Stirling, through the International Environment Centre completed a comprehensive analysis of the canopy cover within all the principal urban areas of Clackmannanshire, Falkirk and Stirling. This analysis confirmed an average canopy cover of 15 % across the region, providing both a fixed baseline data set and a methodology for continuing to assess the canopy cover of the region over the coming years, monitoring progress as the FCF initiative progresses.

It is worth noting that Clackmannanshire and Falkirk have some of the most deprived neighbourhoods in Scotland, containing data zones within the 5% most deprived in Scotland based on the Scottish Index of Multiple Deprivation (SIMD). Further analysis must therefore be done to ensure tree planting is targeted to the areas where the greatest benefit will be derived.

Further details on the canopy analysis carried out by Scotland's International Environment Centre can be found within the following story map:
FCF Urban Tree Canopy (arcgis.com)

10-year Canopy Target

- **Increase average canopy cover across the region's urban environment from 15% to 20%**
- **With an initial focus on 12 neighbourhoods where increasing the proportion of tree canopy will deliver the greatest benefits**

Appendix 1.
Relevant National and Local Strategies to the development of the Forth Climate Forest

National:

- National Planning Framework 4
- Scottish Forestry Strategy
- Scottish Biodiversity Strategy
- Programme for Government

Local

Clackmannanshire

- Stirling and Clackmannanshire Forest and Woodland Strategy, Supplementary Guidance, 2014
- Clackmannanshire Biodiversity Action Plan
- Local Development Plan

Falkirk

- Falkirk Forest and Woodland Strategy, 2015 to 2050
- Falkirk Second Nature
- Climate Change Strategy
- Local Development Plan

Stirling

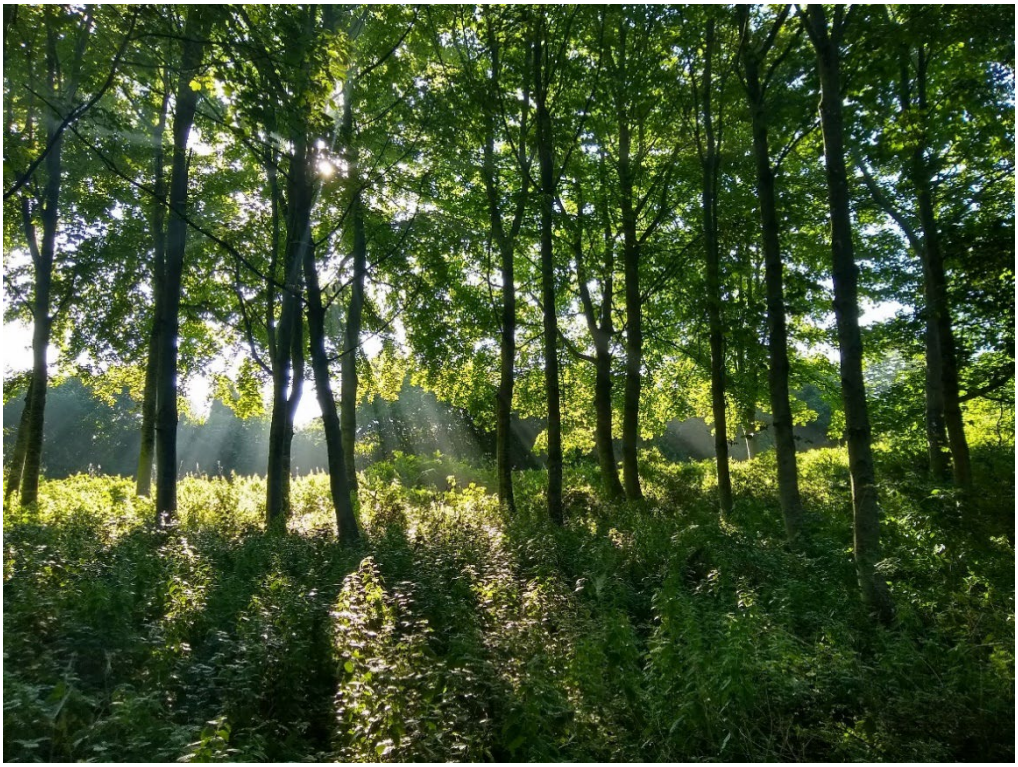
- Stirling and Clackmannanshire Forest and Woodland Strategy, Supplementary Guidance, 2014
- Stirling Alive with Nature
- Climate Change Strategy
- Local Development Plan

LLTNP

- Forest and Woodland Strategy
- Future Nature route map
- National Park Spatial strategy
- Local Development Plan

Forth Climate Forest

Communities - Canopy - Connectivity - Carbon



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October 2024

www.stir.ac.uk/forth-climate-forest

Part of Scotland's International Environment Centre

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WOODLAND TRUST SCOTLAND

Scottish Forestry
Coilltearachd na h-Alba

Clackmannanshire Council

Falkirk Council

Stirling Council

LOCH LOMOND & THE TROSSACHS NATIONAL PARK