

SCOTLAND - CAIRNGORMS CONNECT

Climate Change Mitigation in the Endangered Landscapes and Seascapes Programme



The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations

The Endangered Landscapes and Seascapes Programme supports nature restoration across European land- and seascapes.

Why restore nature?

As well as providing benefits for biodiversity and ecosystem services, restoring natural landscapes also has the potential to contribute to climate change mitigation.

About the project

The Cairngorms Connect project aims to restore habitats and natural processes over a span of 200 years and improve habitat for biodiversity.

Caledonian Pine Forest in the Cairngorms National Park is home to some of the rarest wildlife in the UK, including red squirrels, pine martens, Scottish wildcats and capercaillie.

This habitat has experienced significant loss and fragmentation during the last two centuries as a result of human intervention and climate change.

The project aims to restore native woodland, peatland and riparian habitats and increase the connectivity and resilience of the landscape.

Project size: 57,801 ha

Assessment timeframe: 2022-2042

Partners: RSPB Scotland, FLS, NatureScot, Wildland Limited

Key activities:

- Regenerate woodland on open heathland
- Restock felled non-native plantations with native species
- Rewet degraded peatlands

Total mitigation potential: -502,078 tCO₂-e

Assessing the climate change mitigation potential of this project

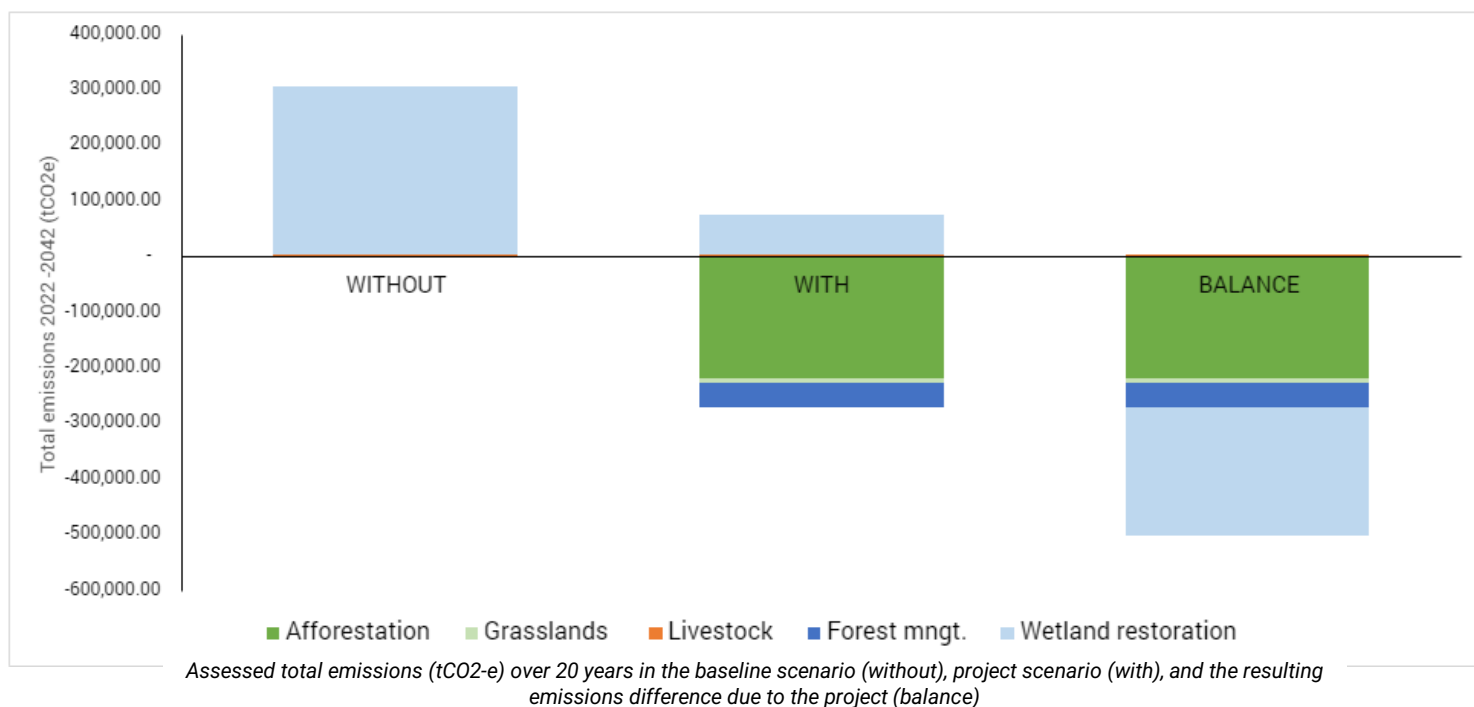
To determine the contribution of these actions towards climate change mitigation, their impacts on carbon stocks and GHG emissions need to be calculated. The most applicable tool for doing this is the EX-ACT carbon assessment tool, developed by FAO.

This tool uses the default 'Tier 1' emission factors for the carbon sequestration of broad habitats and regions. Accuracy can be increased by more specific 'Tier 2' emission factors from the literature.

EX-ACT compares the 'project scenario' (the impacts of the restoration interventions) with a 'baseline scenario'. This determines the changes in greenhouse gas sequestration that are due to the project.

The interventions covered in this assessment include peatland re-wetting, expansion of native woodlands across heather moorland, restructuring of Scot's pine plantations, and the removal of non-native plantations. Cairngorms Connect also undertake collaborative deer management, to allow woodland expansion and peatland recovery, and restoration of floodplain mire and fen.

Climate change mitigation results



Project outcomes

Over the 20 years of this assessment (2022-2042), the EX-ACT tool predicts there will be a total net emissions reduction of around **-502,078 tCO₂-e**.

This is mostly due to enhanced afforestation through native woodland regeneration and restructuring plantations. This results in a net increase in carbon sequestration of **-259,792 tCO₂-e** compared to the baseline scenario.

Reducing deer numbers and grazing intensity is predicted to improve grassland condition, sequestering an additional **-10,301 tCO₂-e** into soils. Changes to animal populations result in a net increase of **229 tCO₂-e** due to introduction of native cattle. But these will benefit grassland condition and biodiversity.

Additionally, rewetting degraded peatland results in reduction in emissions of **-232,214 tCO₂-e**, and over time this will increase.

Limitations

Due to the uncertainties associated with Tier 1 and Tier 2 emission factors, the results shown here are estimates. To increase accuracy, on-site carbon flux measurements can be used for future assessments.

The EX-ACT tool simplifies ecological processes and this adds further uncertainty.

The assessment timeframe of 20 years is also relatively short in relation to ecological processes. Over timescales longer than this assessment (beyond 2042) the mitigation potential is expected to be much higher.

Associated benefits

- Improved habitats to support native wildlife
- Protection of healthy peatlands
- Reduction of downstream flood-risk
- Other ecosystem service benefits including improved water quality, reduced water temperatures, and reduced soil erosion.

More information:

[ELSP- Cairngorms Connect](#)

[EX-ACT tool](#)

[ELSP- Natural Climate Solutions](#)

