

CAIRNGORMS CONNECT – WILDLAND LIMITED

Climate Change Mitigation in the Endangered Landscapes Programme

Why Restore Landscapes?

Landscape restoration is increasingly being recognised a vital tool in limiting the consequences of climate change whilst meeting global biodiversity goals.

The Endangered Landscapes Programme aims to restore natural ecological processes and conserve biodiversity across Europe.

The Project

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

This habitat has undergone significant loss and fragmentation the last couple centuries as a result of human intervention and climate change.

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

Wildlands Limited encompass 4 estates within the Cairngorms Connect project. They were previously run as traditional sporting estates and are now managed for conservation by Wildland Limited.

Project Size: 31,220 ha within wider 60,000ha of Cairngorms Connect

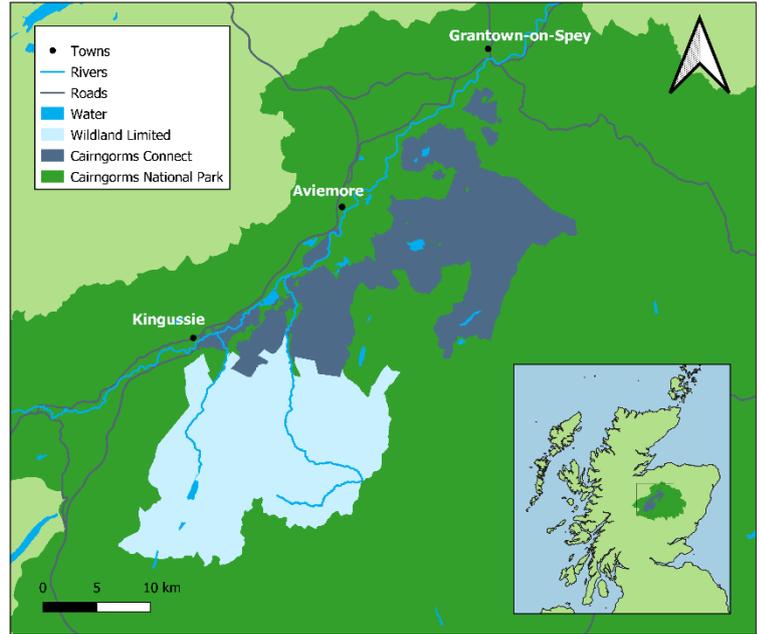
Assessment timeframe: 2000-2020

Project Outcomes

- **Grasslands improved** from reduced grazing intensity
- **Regeneration of 2,317ha of native pine forests**
- **Reducing deer populations** from 14,049 to 624 individuals
- **43ha of non-native plantations felled** to allow natural regeneration of native pine forests
- **Rewetting of 449ha of eroded peatland**

Tool: EX-ACT

Mitigation potential: -301,776 tCO₂e



Assessing the climate mitigation potential of restoration projects

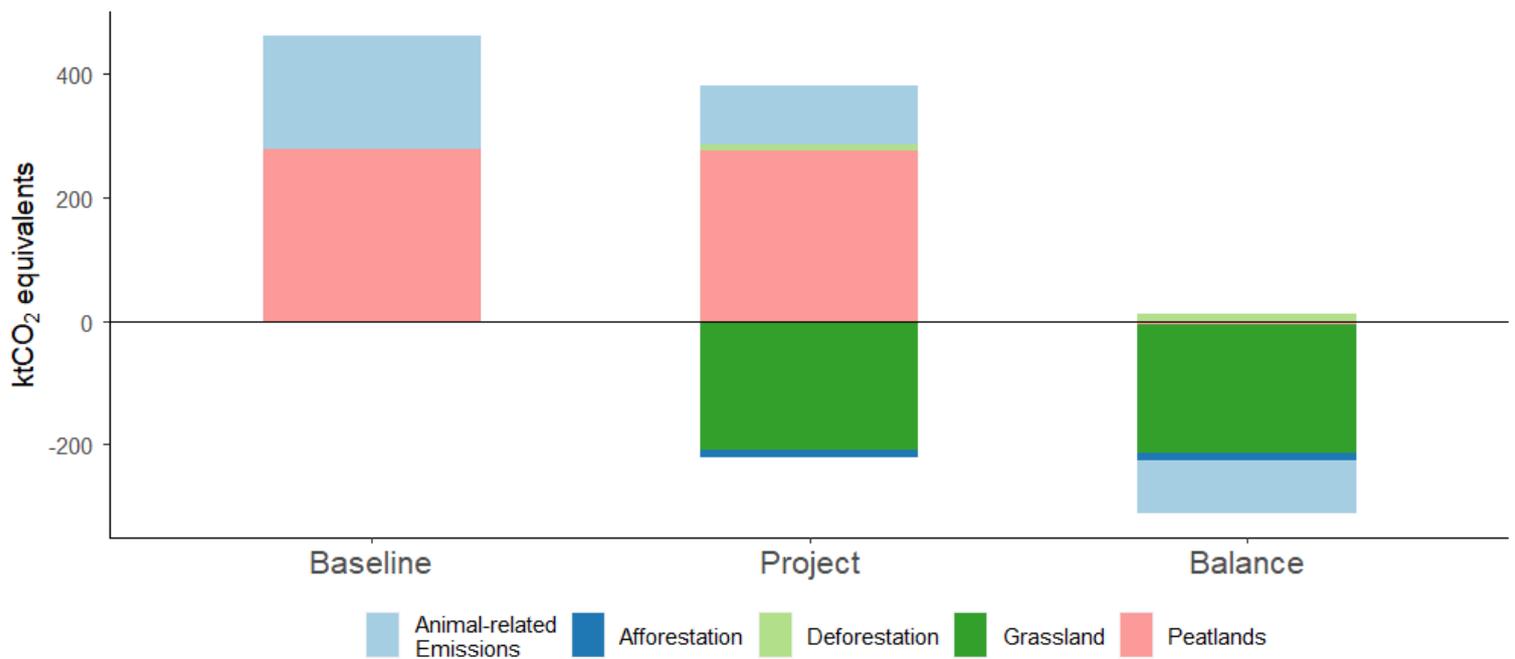
There are several tools and methodologies available for assessing the climate mitigation potential of restoration projects. The choice of an appropriate tool depends on the data available and detail required. This project utilises the EX-ACT carbon assessment tool developed by FAO.

By default, EX-ACT makes use of 'Tier 1' emissions factors: globally agreed means for broad habitat and climate regions. However, 'Tier 2' inputs can be added: emissions factors specific to local areas or adjusted with site-specific information. Updating these values to 'Tier 2' can provide projects with more tailored results and reduce associated uncertainty.

By comparing the outcomes of the project to a baseline, or "business-as-usual" scenario the Greenhouse Gas benefits can be assessed.

The Baseline scenario assumed the previous management of the estate would remain unchanged. Under this scenario the site would continue to be run as a traditional sporting estate with no restoration activities taking place.

The Project scenario included the main outcomes of the project.



Project Outcomes

According to the carbon assessment tool EX-ACT, the project substantially reduced emissions over the 20-year period by **net emissions of -301,776 tCO₂e**. The significant reduction in the deer population reduced their direct emissions by **-87,665 tCO₂e**.

Furthermore, the reduction in deer populations had further indirect results. The improvement in grassland condition was estimated to sequester a further **-208,791 tCO₂e**. Reforestation of native woodlands sequestered **-11,488 tCO₂e**.

The rewetting of eroded peatland reduced emissions compared to the drained state and sequestered carbon by **-4,620 tCO₂e**. Some increased methane emissions occurred but were outweighed by reductions in emissions from degrading peat soils, and carbon sequestration.

Similarly, while the deforestation of plantations resulted in **10,788 tCO₂e** emissions, these are heavily outweighed in the long-term by the regeneration of native pine wood continuing to sequester carbon over long periods of time.

Limitations

The results presented here are estimates and could be further improved with carbon data collected from the site.

The equations used within the tool simplify complex ecological processes and there is uncertainty associated with both the Tier 1 and 2 estimates used.

The analysis presented here looks at a relatively short timescale of 20 years. Over the course of the 200-year project the potential climate change migration benefits will be substantially higher, though the impacts of climate change may reduce this.

Further Benefits

- **Improved habitat** for wildlife.
- Continued restoration of the pine forests and peatlands will contribute even **greater potential climate mitigation benefits**
- **Other ecosystem service benefits** including improved water quality and storage, and reduced soil erosion.
- Improving **nature-based tourism**.

More information and partners

[ELP Cairngorms Connect](#)

[Wildlands Limited](#)

[Cairngorms Connect](#)

[EX-ACT Tool](#)

[ELP Natural Climate Solutions](#)

