

CUMBRIAN LAKES AND DALES – LOWTHER ESTATE

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

Cumbria's mountains have internationally important areas of upland heath, alpine meadow, ancient woodlands, and fen which are increasingly becoming restricted to fragmented protected areas.

Lowther is part of the ELP Cumbrian Lakes and Dales project and is located within the Lake District National Park, Cumbria, England. The estate was previously run as farmland, with cropland and grassland used for intensive sheep grazing. As part of the Cumbria Lakes and Dales project, Lowther Estate aims to move away from intensive farming and allow the grassland and arable land to regenerate alongside active planting of a low-density woodland on the estate.



Assessing the climate change mitigation potential of restoration projects

There are several tools and methodologies available for assessing the climate change mitigation potential of restoration projects. The choice of an appropriate tool depends on the data available and detail required. This project utilises the Carbon Benefits Project (CBP) carbon assessment tool, developed by the Carbon Benefits Project Consortium.

By default, CBP 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 could be assessed.

The Baseline scenario assumed the land cover and management present at the start of the project would remain unchanged.

The Project scenario included the main outcomes of the project.

Project Size: 216 ha

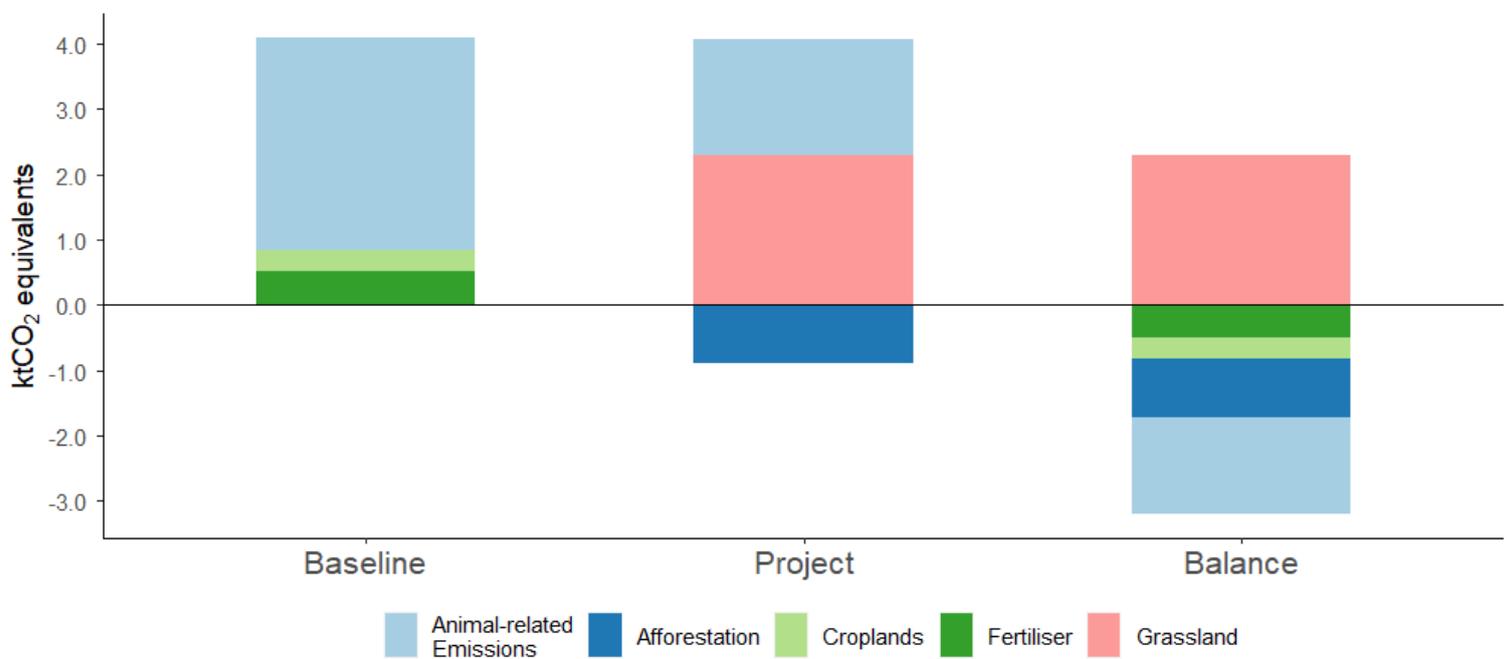
Assessment timeframe: 2019-2029

Project Outcomes

- **Replace high-intensity sheep grazing with native cattle grazing** at a sustainable intensity.
- **Improve grassland ecology** through the reduction in grazing intensity.
- **Afforestation and reforestation** on some grassland and arable land to create low-density woodland (43 ha) and parkland habitats (173 ha).
- **Cessation of fertiliser inputs** on arable lands and grasslands.

Tool: Carbon Benefits Project

Mitigation potential: -921 tCO₂e



Project Outcomes

According to CBP, the project could reduce and sequester emissions by **-921 tCO₂e** between 2019 and 2029 if project aims are achieved.

The creation of low-density woodland and parkland habitats is expected to sequester **-900 tCO₂e** during the assessment period.

The replacement of sheep with native cattle grazing at low density is expected to reduce direct emissions by **-1,480 tCO₂e**. As a result of changing management practices, the grassland condition is expected to change from 'improved' to non-degraded. Although this is an ecological improvement, in a carbon sense, this represents a decrease in productivity and carbon storage as inputs are no longer applied. Therefore, this is expected to result in emissions of **2,291 tCO₂e**.

Converting arable land and ceasing the use of fertiliser is expected to decrease associated emissions by **-512 tCO₂e**.

Reducing cropland area and fertiliser use decreased their associated emissions by **-1,917 tCO₂e** and **-10,945 tCO₂e** respectively.

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, up to 2029. Over the course of time, the potential climate change migration benefits will be substantially higher. Furthermore, Lowther Estate represents only one part of the greater Cumbrian Lakes and Dales project, which will have significantly larger climate change mitigation benefits.

Further Benefits

- **Improve and connect habitat** for wildlife.
- **Other ecosystem service benefits** including improved water quality and reduced soil erosion through improved vegetation.

More information and partners

[ELP Cumbrian Lakes and Dales](#)

[Lowther Estate and Properties](#)

[United Utilities](#)

[Natural England](#)

[Carbon Benefits Project Tool](#)

[ELP Natural Climate Solutions](#)



