

# CUMBRIAN LAKES AND DALES – HAWESWATER

## 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, but these are increasingly becoming restricted to fragmented protected areas. Haweswater is part of the ELP Cumbria project situated in the Lake District, United Kingdom. The project is run by a partnership between RSPB, United Utilities (UU), Lowther Estate and Natural England.

The Haweswater site covers a total area of 2250 ha and the surrounding valleys are steep-sided with oak-birch woodland and grass, bracken, or heather dominated heathland on the upper plateaus.

**Project Size:** 2,254 ha within wider ELP Cumbria Lakes and Dales project.

**Assessment timeframe:** 2011-2020 and 2020-2040

#### Project Outcomes

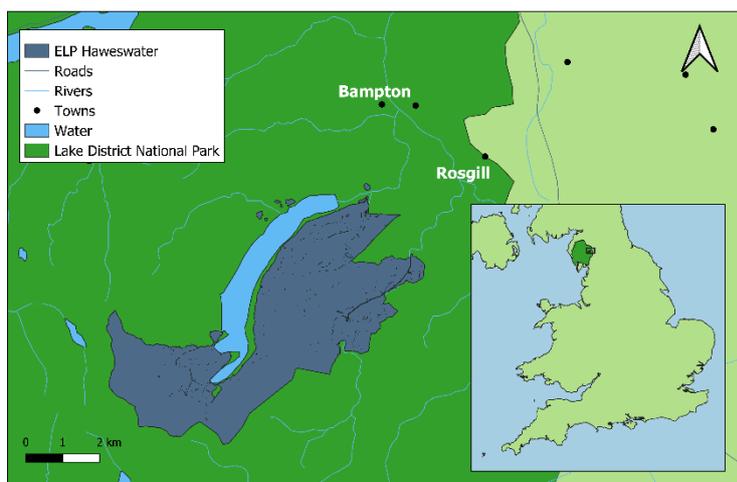
- Grasslands improved from reduced grazing intensity
- Planting of native trees, shrubs, and herbs to re-establish woodlands
- Flood retention and rewetting of 337 ha drained blanked bog.
- Restoration of degraded heathlands

**Tool:** EX-ACT

#### Mitigation potential:

**-4,294 tCO<sub>2</sub>e between 2011-2020**

**-57,449 tCO<sub>2</sub>e between 2020 and 2040**



### Assessing the climate mitigation potential of restoration projects

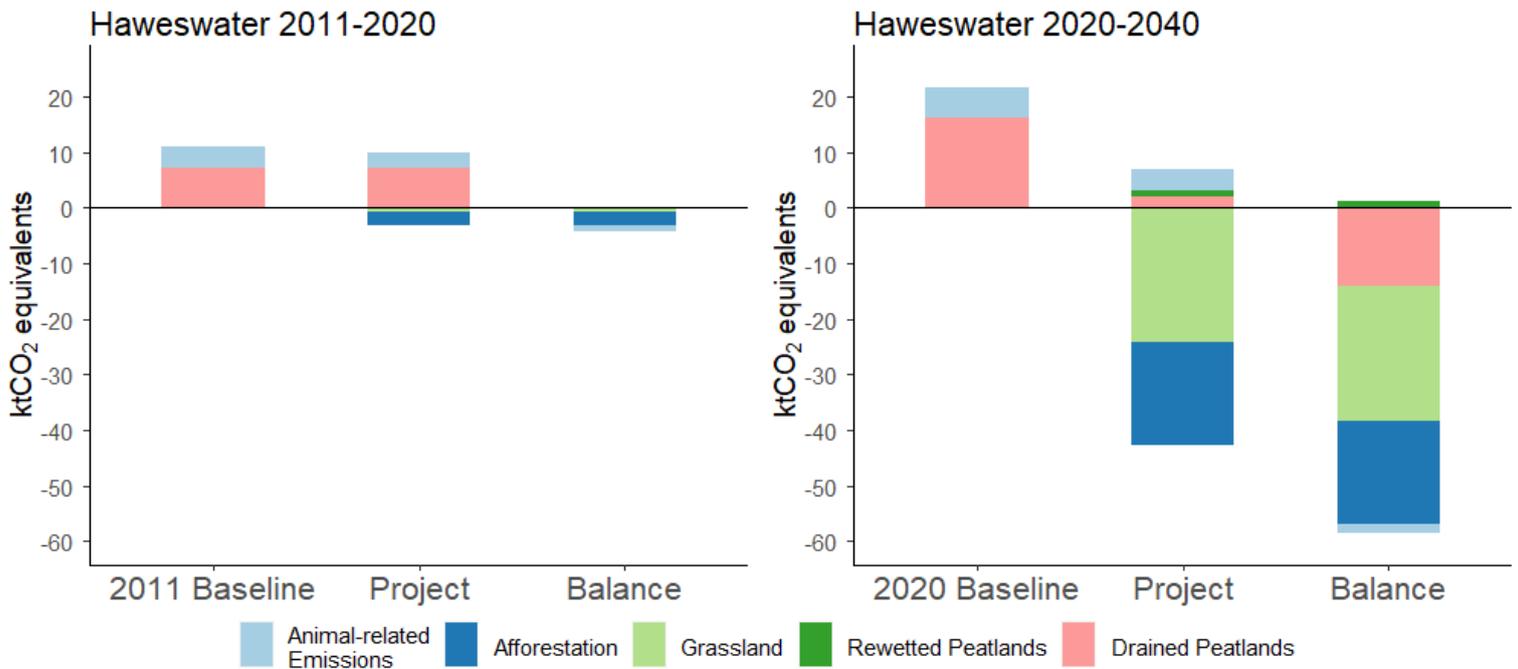
There are several tools and methodologies available for assessing the climate mitigation potential of restoration projects. The choice of an appropriate tool depends on the data available and detail required. This project utilises the EX-ACT GHG assessment tool developed by the FAO.

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 2011-2020 Baseline scenario assumed the previous management of the estate would remain unchanged with no restoration activities taking place. The 2020-2040 Baseline scenario assumed no further restorative actions would take place following the outcomes of the project in 2020.

The Project scenarios included the main outcomes of the project, with peatland rewetting and heathland restoration assumed to take place in the second assessment period.



## Project Outcomes

According to the GHG assessment tool EX-ACT, the project reduced emissions and sequestered carbon over the two assessment periods. Restoration activities resulted in net negative GHG balances of **-4,294 tCO<sub>2</sub>e** and **-57,449 tCO<sub>2</sub>e** over first and second assessments. The significant reduction in the sheep population and introduction of native grazers reduced overall direct emissions by **-1,165 tCO<sub>2</sub>e** and **-1,682 tCO<sub>2</sub>e** over the two assessment periods.

Furthermore, the reduction in grazing intensity was expected to result in improved grassland and heathland condition. This was estimated to sequester a further **-653 tCO<sub>2</sub>e** in the first assessment period and **-24,113 tCO<sub>2</sub>e** in the second.

The establishment of scrub/woodland and woodland pasture was estimated to sequester **-2,475 tCO<sub>2</sub>e** and **-18,665 tCO<sub>2</sub>e** into vegetation biomass and soil over the first and second assessment periods.

The rewetting of eroded peatland reduced emissions compared to the drained state carbon sequestration totalling **-12,989 tCO<sub>2</sub>e**. Some increased methane emissions result from rewetting, but are outweighed by reductions in emissions from degrading peat soils, and carbon sequestration.

## Limitations

The results presented here are estimates and could be further improved with emissions factor and carbon storage 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.

## Further Benefits

- **Improved habitat** for wildlife.
- **Other ecosystem service benefits** including improved water quality and storage, and reduced soil erosion.
- Improving **nature-based tourism**.

### More information

[ELP Cumbrian Lakes and Dales](#)

[RSPB](#)

[United Utilities](#)

[Natural England](#)

[EX-ACT Tool](#)

[ELP Natural Climate Solutions](#)



giving nature a home



