WALES – CAEMARDIN FARM
Climate Change Mitigation in the Endangered Landscapes Programme

Why Restore Landscapes?

Landscape restoration through changing landscape management is increasingly being recognised as 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

Across Wales there has been a significant proportion of natural habitat lost, including 44% of upland heathland. Only 12% of woodland in Wales is ancient or semi-natural, and much of that has become degraded and fragmented.

O'r Mynydd i'r Môr - Summit to Sea is working with local land owners to develop collaborative land and sea management interventions to deliver nature benefits at scale, across resource ownership and management boundaries.

Caemardin Farm forms part of the wider Summit to Sea project area, and includes grassland, woodland, and bogs. The land used to be subject to intensive grazing, which led to the degradation of grasslands and bogs. Through a partnership with the landowner, land management changes started back in the 1980s and are ongoing.

Rivers
Roads
Water
Caemardin Farm
Snowdonia National Park

0   0.75   1.5 km

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 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 assessment occurred over two periods, 1980-2020 and 2020-2040 to look at achievements of the project to date and planned restoration activities into the future. The Baseline scenarios assumed the land cover and management present at the start of the project and after the first assessment period would remain unchanged.

The Project scenarios included the main outcomes of the project.

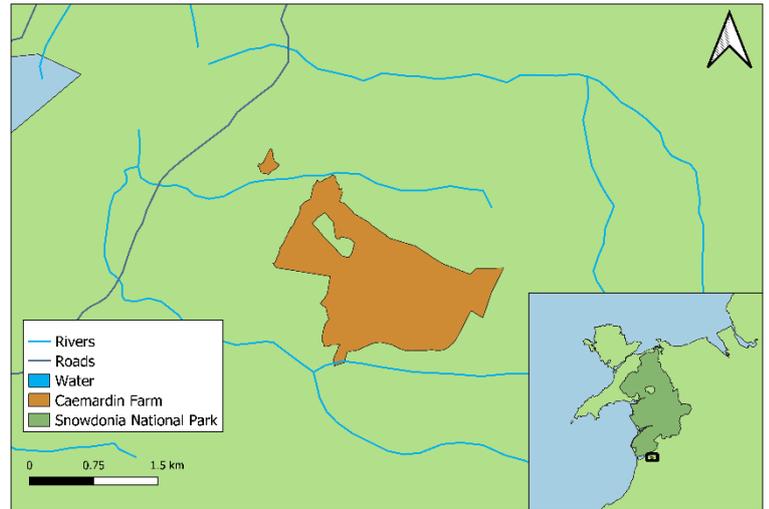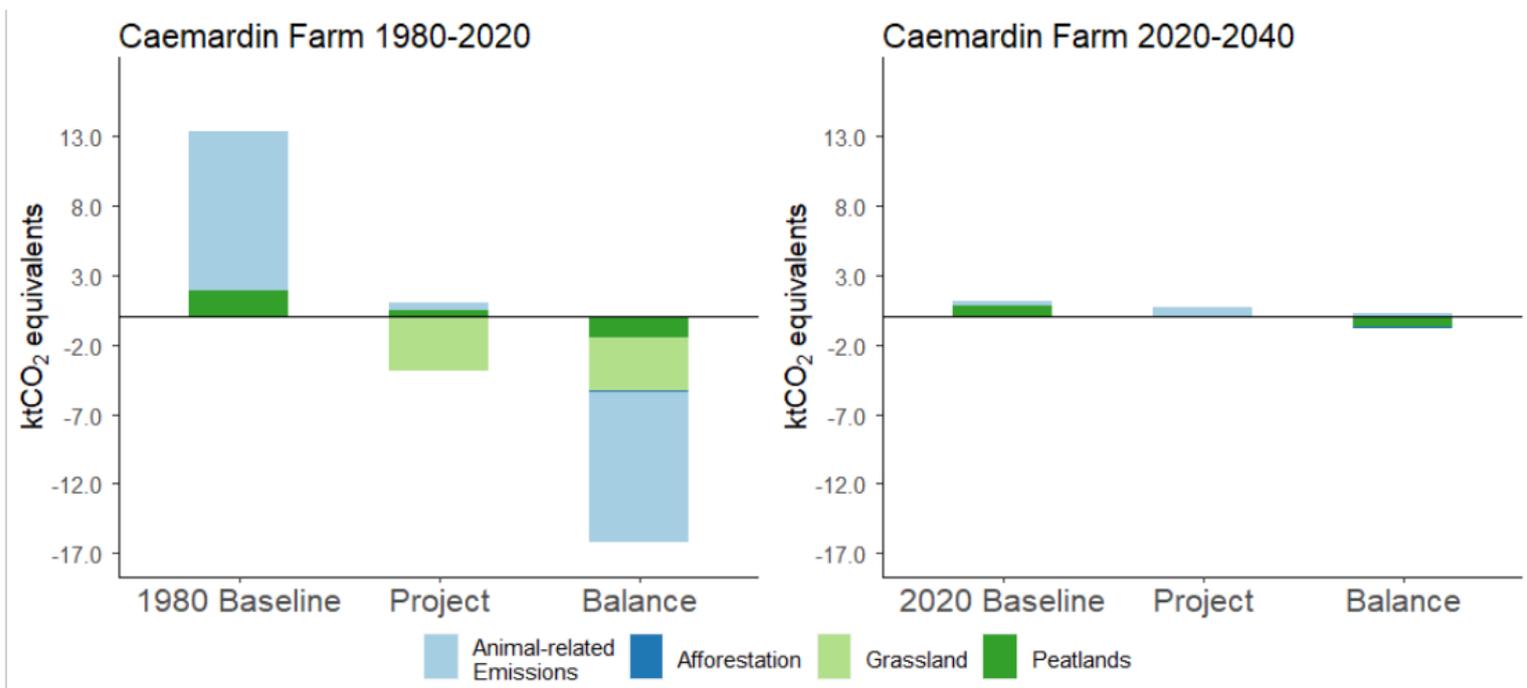**Project Size: 270 ha** within the wider Summit to Sea project area

Assessment timeframe: 1980-2020 and **2020-2040**

Project Outcomes

- **Introducing native ponies and cattle** to restore natural grazing processes.
- **Gradual rewetting of peatlands** damaged by intense grazing and agriculture.
- **Creation of open woodland areas** through natural regeneration and active planting of rowan.

Tool: EX-ACT

Mitigation potential: -16,248 tCO$_2$e (1980-2020) and **-479 tCO$_2$e** (2020-2040)

Caemardin Farm 1980-2020 / **Caemardin Farm 2020-2040**

Legend: Animal-related Emissions | Afforestation | Grassland | Peatlands

Project Outcomes

The project is estimated to have reduced and sequestered emissions totalling **-16,248 tCO₂e** between 1980 and 2020 and could achieve a further net reduction of **-479 tCO₂e** between 2020 and 2040.

The creation of low-density woodland habitats is estimated to have sequestered **-73 tCO₂e** during the first assessment period and could sequester a further **-12 tCO₂e** between 2020-2040.

The replacement of sheep with native ponies during the first assessment period reduced direct emissions by **-10,878 tCO₂e**. The improved condition of grassland and heaths sequestered a further **-3,835 tCO₂e** into the soils. During the second assessment, the introduction of 10 cattle alongside the ponies is expected to increase direct emissions by **297 tCO₂e**. However, their grazing will likely bring about further ecological improvements to grassland communities.

The gradual peatlands improvements in the first assessment reduced their emissions and sequestered carbon totalling **-1,463 tCO₂e** and **-479 tCO₂e** between 2020-2040.

Limitations

The results presented here are estimates and could be further improved with 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 represents a snapshot of emissions, peatland habitats in particular could continue to sequester carbon far into the future.

Further Benefits

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

More information and partners

O'r Mynydd i'r Môr - Summit to Sea

RSPB

Woodland Trust

Pen Llŷn a'r Sarnau Special Area of Conservation

Montgomeryshire Wildlife Trust

Whale & Dolphin Conservation

Marine Conservation Society

EX-ACT Tool

ELP Natural Climate Solutions

rspb giving nature a home | UN environment programme | WCMC BirdLife INTERNATIONAL

ENDANGERED LANDSCAPES PROGRAMME | ARCADIA A CHARITABLE FUND OF LISBET RAUSING & PETER BALDWIN