MONTADO MOSAIC

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

The montado is a rare cultural agro-ecosystem habitat with high levels of biodiversity, many of which are of international importance. In Margem Esquerda, eastern Guadiana (Southern Portugal) the montado landscape is home to approximately 100 species of European importance, including Iberian lynx, Iberian imperial eagle and black vulture.

Spanning two Natura 2000 sites, the Montado Mosaic ELP project aims to restore a wilder, functional, more resilient landscape. In doing so, the improved landscape will harbour more complete communities of predators, prey and scavengers and play a vital role in their conservation.

The project also aims to improve climate change adaptation and resilience as well as benefit local livelihoods.

Project Size: 270,000 ha

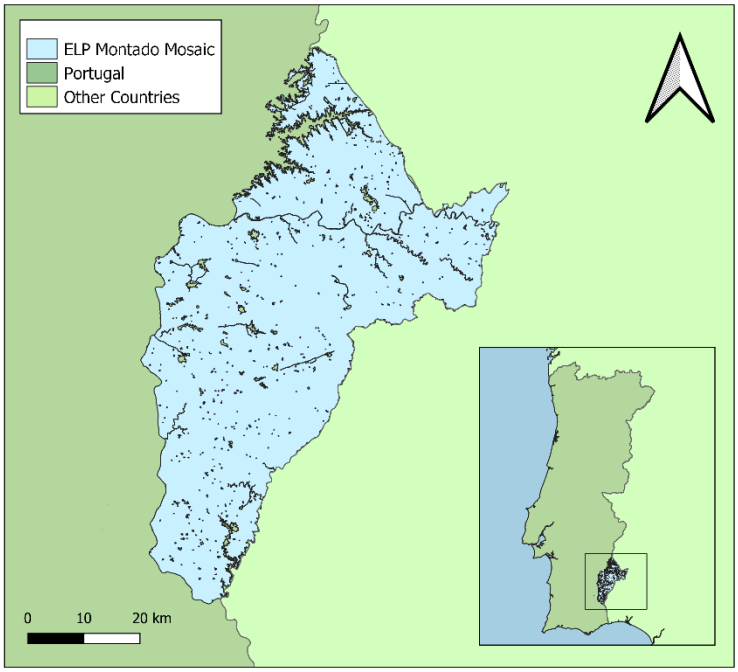
Assessment timeframe: 2020-2040

Project Outcomes

- **Restoration of natural habitats** (including natural forests of cork and holm oak and shrubland)
- **Restoring 3,438ha of mixed shrubland communities**
- **Connecting habitats**
- **Increasing tree density** on Montado habitats
- **Reducing grazing intensity** on grasslands and shrublands

Tool: EX-ACT

Mitigation potential: -1,718,409 tCO_2e



Assessing the climate change mitigation potential of restoration projects

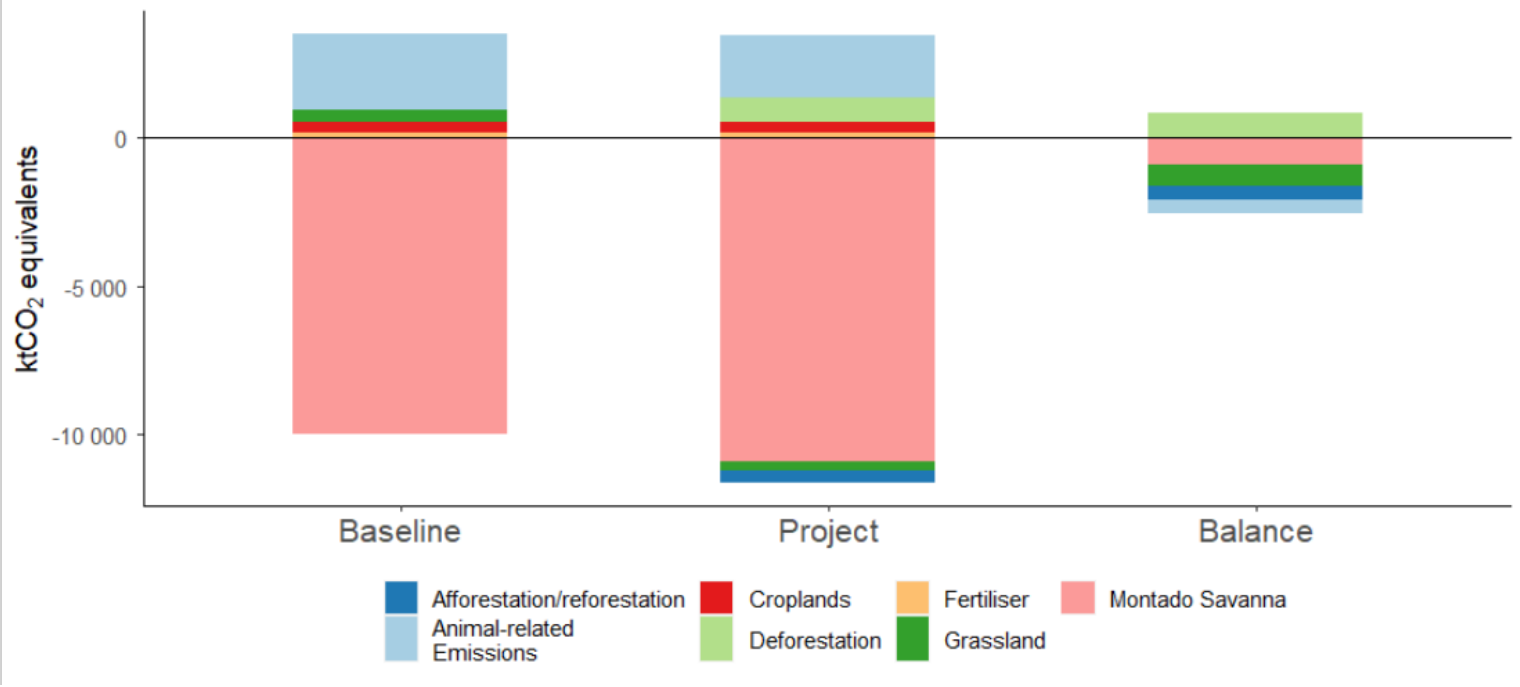
There are several tools and methodologies available for assessing the climate change mitigation potential of restoration projects. The choice of an appropriate tool depends on the data available and detail required. This project utilises the EX-ACT carbon assessment tool, developed by FAO.

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 Baseline scenario assumed the land cover would remain the same, however, continued high intensity grazing was expected to reduce decrease grassland soil carbon stocks.

This project is in the planning stage and there are several potential restoration scenarios informed by biodiversity conservation and climate change adaptation outcomes. Therefore, the results of this analysis reflect only one potential scenario and is subject to change.



Project Outcomes

According to EX-ACT, the project could reduce and sequester emissions by **-1,718,409 tCO_2e** between 2020 and 2040 if project aims are achieved.

Increasing tree density in the Montado savanna habitat is expected to sequester **-912,594 tCO_2e** during the assessment period. Furthermore, the afforestation/reforestation of Montado and mixed shrubland communities could sequester **-440,745 tCO_2e.**

The reduction in grazing intensity and subsequent improvement of grassland condition was estimated to sequester **-726,392 tCO_2e**.

The reduction in livestock reduced their direct emissions by **-450,660 tCO_2e**.

Reducing cropland area and fertiliser use decreased their associated emissions by **-1,917 tCO_2e** and **-10,945 tCO_2e** respectively.

The project introduced emissions from the deforestation of some pine and eucalyptus plantations, totalling **824,844 tCO_2e** over the assessment period. However, this was heavily outweighed by subsequent replanting of Montado and mixed shrub communities.

Limitations

The results presented here are estimates and could be further improved with emissions and 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 2040. Over the course of time, the potential climate change migration benefits will be substantially higher.

Further Benefits

- **Improve and connect habitat** for wildlife.
- **Other ecosystem service benefits** including improved water quality and reduced soil erosion.
- **ncreased climate change adaptation** e.g. through improved microclimates.

More information and partners of the Montado Mosaic Project:

ELP Montado Mosaic

EX-ACT Tool

ELP Natural Climate Solutions

BirdLife INTERNATIONAL

rspb giving nature a home

lpn Liga para a protecção da natureza

UNIVERSITY OF CAMBRIDGE

FAUNA & FLORA INTERNATIONAL

UN environment programme WCMC

ENDANGERED LANDSCAPES PROGRAMME

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