

# Restoration of Lowland Moor in Bos-cha, Canton of Graubünden, Switzerland



Bos-cha lowland moor near Guarda as seen in winter. Photo: Pro Terra Engiadina Foundation (PTE)

**The lowland moor near Bos-cha in the Lower Engadine is listed in the regional moorland inventory and is therefore protected. Like most moors, however, it was previously drained by means of drainage ditches before it was legally protected. Thanks to this nature-based climate protection project, the funds lacking for rewetting are to be made available. The restoration will benefit not only the climate but also biodiversity, the water table, tourism and the local construction industry.**

Intact moors have enormous carbon storage potential. Globally, moors store 30 per cent of soil carbon, despite the fact that they cover only three per cent of the world's surface. These days, moorlands listed in the inventory are protected, but most were drained using drainage ditches to allow for agricultural use before they were legally protected. Despite protection, many of the moors remain in their drained state and emit CO<sub>2</sub>. The reason for this? There are not sufficient funds to restore all the drained moors. The restoration of moors counts as a nature-based solution and is an important tool in the fight against global warming.

## Intact Moorland for Long-term Carbon Storage

The lowland moor near Bos-cha was also once drained, but through restoration the moor will regain its ability to store carbon. How does this work? When a moor has been drained, oxygen penetrates the soil and converts the carbon bound in the peat into CO<sub>2</sub>, which escapes into the atmosphere. Restoration is the only way to reverse this process and enable the moor to store carbon again for the long term. As part of the rewetting, the drainage ditches are blocked using structural measures, raising the water level. Once a moor has been returned to its natural, intact state, the high water level inhibits the decomposition of the organic material, in which large quantities of carbon are permanently stored. In this way, the carbon is sequestered in the peat for the long term and CO<sub>2</sub> emissions are avoided.

## Project type:

Land Use and Forestry

## Project location:

Switzerland, Graubünden

## Project status:

In operation, exclusive

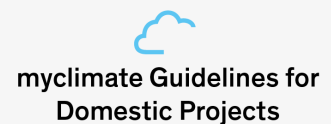
## Annual CO<sub>2</sub> reduction:

Approx. 3000 t CO<sub>2</sub> (total reduction over 50 years)

## Situation without project

Peat decomposition releases CO<sub>2</sub> emissions

## Project standard

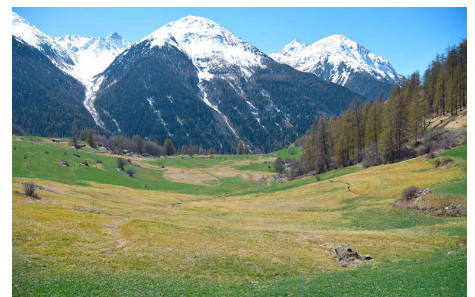


## Partner



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## Impressions



## Partnerships and Approach to Calculation

The renaturalisation was carried out at the suggestion of the steering committee of the Naturemade Star Fund Guarda, which includes representatives of the municipality, the fisheries commissioner and NGOs. The project was co-financed by money from the eco-fund and contributions from the canton of Graubünden. The project management for the renaturalisation was carried out by the pro Terra Engiadina Foundation. The climate protection project closed the financing gap and was therefore a decisive factor in the renaturalisation project. The renaturalisation work was carried out in 2022.

**It is very exciting that the carbon dioxide savings in a lowland moor have been able to be demonstrated and we're pleased that the farmers and owners are supporting the project.**

**Angelika Abderhalden, Pro Terra Engiadina Foundation**

To quantify the greenhouse gases avoided in this way, an approach by the Swiss Federal Institute for Forest, Snow and Landscape Research WSL is being applied for the calculations. According to the max.moor approach, the savings are calculated based on the carbon content in the peat and converted into CO<sub>2</sub> equivalents. The basis for this is a soil analysis of the project area, which includes measurement of the average carbon content.

## Diverse Benefits: Species Diversity, Flood Protection and Tourism

The restoration of a drained moor not only prevents long-term CO<sub>2</sub> emissions but also makes an important contribution to nature conservation by creating valuable habitats for rare animal and plant species. In particular, the rewetting creates a suitable habitat for amphibians and dragonflies. To ensure the project area continues to be managed appropriately in future, various supplementary measures such as stream crossings and a bridge are being implemented. This project thus demonstrates nicely how ecological improvement measures can work in harmony with agriculture.

What's more, the restoration also helps to improve flood protection and the microclimate. A restored moor likewise enhances the landscape and offers local people a place for recreation. As well as the benefits to the ecosystem, there are also socio-economic benefits: the investment flows primarily into the region and moorland restoration expertise is promoted.

**This project contributes to 3 SDGs (as of end 2021):**

Find out how myclimate reports these SDGs in our FAQ.

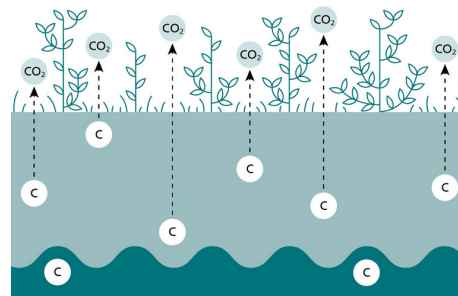


A restored moor improves flood protection, water storage and water cleanliness.

Bos-cha lowland moor near Ardez in the Lower Engadine. Photo: Pro Terra Engiadina Foundation (PTE)



Active drainage ditches in the project area.  
Photo: Pro Terra Engiadina Foundation (PTE)



A drained moor releases carbon dioxide.  
Infographic: Lena Gubler, WSL



Restored moors are major carbon stores.



3.7 hectares are being rewetted and offer a valuable habitat for rare animal and plant species.