European Network for Rural Development

'Abissage' - restoring traditional water management systems in the Ardennes

EAFRD-funded projects

BELGIUM

Biodiversity restoration, preservation & enhancement

Location
Gouvy, Wallonia

Programming period
2014 – 2020

Priority
P4 – Ecosystems management

Measure
M7 – Basic services & village renewal

Funding (EUR in 2017)*
Total budget 1 210
EAFRD 484
National/Regional 726

Project duration
2017 – 2017

Project promoter
Natagriwal

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Website
n/a

* Regional support received in 2013 was equal to 9 467 EUR

Restoration of a meadow irrigation ditch to revive a multi-centennial tradition that existed throughout Europe and over time has produced meadows of outstanding flora.

Summary

For more than 400 years, a practice of grassland irrigation for mowing has developed throughout Europe to ensure effective fodder production on less fertile lands. This type of management has introduced rich and diversified flora in large areas of the Belgian Ardennes.

Due to the intensification of agriculture and use of chemical fertilisers, these practices disappeared shortly after WWII. These exceptional sites are in danger of disappearing and their classification under Natura 2000 is not enough to save them. RDP support was used to protect this site by restoring the irrigation ditches and the traditional water management practices.

Results

A small level of fodder production has been achieved without using fertilisers.

The meadow is classified as a site of great environmental interest. Up to 50 different species can be found on the site including extremely vulnerable species, compared to barely a dozen in usual pasture meadows.

Wildlife has also found an interesting habitat and the site is visited by black storks and amphibians.

The restoration of a second site in the German-speaking community of Belgium is planned. This would make it possible to propose a site in each region of Belgium to UNESCO and request recognition of these devices and their protection.

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Context

Until the mid-19th Century, the High Ardennes region of Belgium consisted of vast areas of heathland and grasslands. This landscape was the result of traditional agro-pastoral management of sheep and cattle herds. In between the high pastures there are valleys where farmers were growing hay and for this purpose they used irrigation ditches ('abissage') located on the slopes of the valleys and on the edge of the water bodies. The objective of the 'abissage' included:

- Warm the soil in the spring as the water from the river streams is warmer than the frozen soil and therefore vegetation starts faster;
- Bring nutrients to the meadow at a time when chemical fertilisers did not exist;
- Level the soil and destroy the molehills.

The soil of those semi-mountainous areas is poor and acidic, however, this traditional practice created a large number of meadows which hosted exceptionally rich flora. In recent times these traditional methods became unprofitable due to mechanisation and use of cheap chemical fertilisers. In the areas where modern practices were not cost effective, the land was either abandoned or planted with conifers. This resulted in the fragmentation and even the disappearance of a large number of semi-natural habitats and the species that lived there.

In 2010, a study were conducted by the University of Liege and Agraost, an association promoting grasslands, on a particular site, called, the 'Pré au Tambales' (the 'Tomb Meadow'). At that site, the local flora was still partially preserved. Agraost, in cooperation with the site's owner, came up with the idea of restoring both the habitat through irrigation, and the historical agro-management system.

Objectives

The repair of the irrigation works will help restore the exceptional flora that was the result of the traditional agro-management system. The restored site will serve as a research tool and will contribute in raising awareness of the flora and the heritage of traditional agricultural practices.

Activities

In the 18th century, the site was covered with mounds of gold panning, due to pre-historical activities. These mounds were waste piles of soil extracted from the stream and discarded after gold panning. These rubble mounds hampered the exploitation of the meadow, so they were removed to build the dike of the pond downstream. There are two mounds remaining in the meadow, one of which has developed a Nardus grassland (Eunis E1.7)

Ditches for irrigation were established in 1870 and late mowing was applied on both slopes of the valley of Fagnes river. Irrigation warmed the soil in the spring and brought mineral elements, which allowed a large production of fodder. The practice was maintained until around 1914.

One century later, the meadow was deeply different due to intensification techniques and the forest was taking over.

In 2013, the first restoration works were realised with support of the Walloon Region. This included clearing the trees along the ditch, reprofiling, building a concrete structure and four dams, maintenance of the Nardus grasslands mounds, setting up an information panel and fence for protection.

Since that year, the site has received support from the rural development programme's Agri-Environment and Climate Measure as a "high biological value meadow". The support was received by the farmer tenant and the site is visited by students and naturalists.

In 2016 and 2017, new works were carried out to improve the function of the ditch. The works were again financed by the Walloon RDP to clear trees and bushes along the ditch, remove stumps and improve the flow of the water through the ditch.

Each year since 2017, a botanical inventory has been conducted. In the first stage, the site showed 50% fewer flora species than planned. This situation is due to the strong mineralisation of mobile nitrogen in the soil that had been accumulated by intensive agriculture techniques. Also, the phosphorus contained in the deposits of slag spread in the past on the meadow was also gradually released. These two factors induced an increase in nitrophilous plants and decreased the species typical of poorer soils. This situation on the site will be corrected gradually by growing and harvesting hay thanks to the support of AECM 7.6.

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Main Results

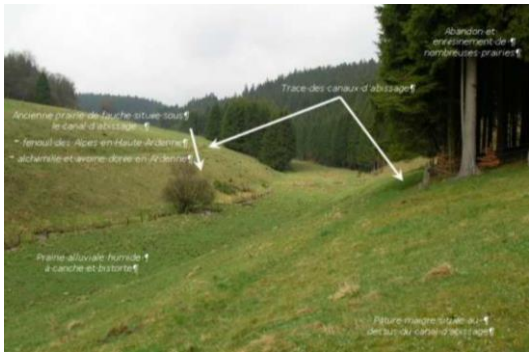
In terms of economic benefits there is production of fodder without fertiliser, but this is a small production. On the other hand, the practice of late mowing justifies the payment of environmental compensation of 450/ha.

The meadow is classified as a site of great environmental interest and the intervention aims to restore a very particular flora which was endangered by past slag deposits which induced a mobilisation of nitrogen and phosphorus. Since 2017 an annual botanical inventory has been conducted. One can find up to 50 different species on the site, compared to barely a dozen in usual pasture meadows. In particular, two remarkable species for the Walloon territory are present, which are the Marsh Pennywort (Hydrocotyle vulgaris), the smallest umbellifer of Wallonia, and the ivy-leaved bellflower (Wahlenbergia hederacea). These species are registered as extremely vulnerable. Wildlife has also found an interesting habitat and the site is visited by black storks and amphibians.

At the social level, the work has promoted an ancestral practice of grassland management that was widespread in the Ardennes until the early 19th century.

The site has been restored thanks to the collaboration of various actors: the owner, the association Agraost, the Walloon Region and EAFRD which financed the works (Measure 7.6), but also the AECM "meadow with high biological value" with the technical supervision of Natagriwal (a Walloon association for environmental support to farmers). The tenant farmer is also involved because he ensures the maintenance of the meadow.

Project partners are part of a group of people from different countries (Germany, Austria, France, Switzerland, the Netherlands and Flanders) who would like to see traditional grassland irrigation recognised as a UNESCO World Heritage Site. Each country will introduce its application at the federal level which will then arrive at the global level.



Other sites present the same vestiges in Wallonia: in the valley of the Holzwarche, or around Bertrix, or on the 'Plateau des Tailles'. In fact, more than a century ago, most of the valleys in the Belgian Ardennes sheltered this type of irrigation and many sites have kept vestiges.

The restoration of a second site is planned in the German-speaking community (municipality of Büllingen). This would make it possible to propose a site in each region of Belgium (Flanders already has a site in Lommel-Kolonie) and to request that UNESCO recognise and protect these devices.

This type of meadow management once existed throughout Europe (irrigation of mowing meadows in western, central and northern Europe, (M. Cabouret, 1997)). Therefore, the site could enter in a patrimonial European network of these ancient type of husbandry. There is a museum of the 'bisses' in Switzerland which gathers important bibliography coming from everywhere in Europe (water-meadows in UK, Wässerwiesen or Flüxwiesen in Germany, Marcita in Italy, Vloeiweden in Flanders). As a result, this type of project could be the subject of a European approach and a first European meeting was organised in 2018 in Lommel with 18 participants to foster the perspective of such heritage conservation.

Additional sources of information

www.agraost.be/doc/dieFluxwiesenderbelgischenArdennenpdf.pdf

www.intwater.uni-freiburg.de/internal/pdfs/poster-agra-ost

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