

Cultivating Value: Teaching a Job and Mitigating Climate Change Effects While Restoring a Landscape Heritage

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In the degraded peri-urban areas, there are several traces of the agrarian landscape heritage: they are not relicts of the past but a resource for managing water, providing fauna and flora biodiversity, and mitigate climate change in the urban environment. A pilot experience of recovering the Milan medieval water meadows has been done in the last two years: the aim was to provide a new job to fragile people, while restoring an ancient landscape. The tangible permanencies have been recovered by unemployed people at the same time as the traditional art of managing water has been taught by ancient watermen. A course has been organized to transfer the knowledge. Several schools have been involved in the practical recovery of artifacts: students enjoyed to care an “ordinary” heritage in their neighbourhood, as a resource for a sustainable way of living, and a good quality landscape. The high social and cultural value provided increased Municipality’s attention to consider a joint management with the social cooperative of this productive landscape and to include didactical visit to water meadow in each student curricula.

Keywords: periurban landscape, rural heritage, urban agriculture, tangible heritage, intangible heritage

1 Introduction

Is landscape heritage an economic burden? It could be a social resource: it could provide jobs for categories that need manual and delicate work, when machine not prevail on hand work but they are integrated. A job that allows people to discover or rediscover a place and give it back to the community. The experience presented demonstrates the opportunity to cultivate value, i.e. to create work from the restoration of a historical agrarian landscape. This has taken place in a difficult peri-urban context that is highly infrastructured and where material permanencies is difficult to be recognised.

1.1 Peri-urban agrarian landscapes

The residual agricultural landscapes remained within the urbanized area due to the expansion of urbanization on agricultural areas: they are the evolution and outcome of the ancient economic and social dependence with the city (Scazzosi, 2020). In some cases they are still agricultural areas cultivated by farmers since generations, in other

cases have been abandoned and left uncultivated, in some have become part of urban parks by changing use and attendance. Among the first cases, the managers have changed and become social cooperatives and providing greater importance to social than to economic relationship with the city (Branduini et al., 2020).

Today, these agricultural residual landscapes can become an environmental, cultural, and social resource for the city to increase biodiversity, mitigate the effects of climate change, rediscover the identity of places, bring people together and making them work together for a common purpose.

1.2 Heritage to be discovered

These landscapes can conserve tangible historical permanencies, mainly from XVIII and XIX century, as finely worked hedges and fences, small agricultural and hydraulic artifacts, land modeled and canals, as well as intangible heritage in water regulation techniques, crop consociations, shrubs and herbs associations, ancient

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varieties of fruits. These techniques are still in use by those farmers who have learned traditional agriculture techniques through their fathers, before the Second World War and the push towards mechanization and crop intensification.

They conserve the active memory of the previous agrarian landscape system (Scazzosi, 2018) while they are developing new social relationships with the city. The knowledge and techniques coming from “traditional” agriculture as intangible heritage, merged into landscape management and construction, can be an opportunity to implement new sustainable agricultural practices that have a lower environmental impact and high biodiversity, and can contribute to an unconventional scientific, technical, and mechanical progress that re-uses and updates the ancient technical knowledge (ICOMOS, 2019).

Agrarian peri-urban landscapes help to reinforce the identity of places and urban communities through their common heritage, reminding us of the historic

commercial and leisure role of the countryside and its connection with urban areas, particularly in metropolitan areas where rapid and deep transformations can cause many social and cultural problems (Branduini et al., 2016).

Peri-urban agrarian landscapes can be maintained by the joint work of different people, coming from different social milieu and countries: fragile people, unemployed, students, migrants, farmers, as all being local residents. They can form a more inclusive and democratic society (Olwig, 2007; Egoz et al., 2018).

The aim of the pilot-project was to improve the quality of a degraded peri-urban area by the restoration of an agrarian heritage: while this is made of tangible permanencies and intangible techniques, in order to maintain it alive and productive, a course for unemployed people has been organized during the restoration phases. Moreover, several workshop for the schools has been organized to raise pupils’ awareness on historical ordinary landscapes and to their maintenance. In two



Figure 1 Map of Milan with the localization of the water meadow in the Lambro Park
Source: Elaboration from Google map

years of activity, some management issues has been overcome and some promising social and environmental results have been obtained to encourage further recovery of peri-urban water meadows. Hereafter the project experience is presented.

2 Material and methods

2.1 The Grangia di S. Gregorio project

The project started in 2021 and aimed to create new jobs for fragile categories through teaching traditional agricultural practices and recovering water meadows; it took place in one of the urban parks of the Milan green belt, Lambro park (Fig. 1). The project was funded by the Cariplo foundation that is engaged in cultural, social and environmental benefit actions for the Lombard territory and it was part of the Cultivating Value 2020 program.

Within and beside Lambro Park, Cascina Biblioteca social cooperative is engaged since 1995 in employing people

with fragilities in the maintenance of green areas and it cultivates 38 hectares of agricultural land, 31 ha of them are partly uncultivated, partly grassland and partly cultivated with cereals using the conventional method, resulting in a high environmental impact and reduced profitability in relation to management costs.

Within the Lambro park, two of the historic water meadows (marcita in Italian) are still present and irrigated by the Lambro river and its derivatives (such as the Molinara Canal): they used to regulate Lambro floods, purify water and produce a consistent amount of forage, greater than the normal meadows.

The historical analysis conducted in parallel with the practical activities revealed signs of the irrigation system from XVIII century and the drawing of the water meadows from XIX c. (Fig. 2). Today, they are a precious testimony of an ancient water regulation technique, expression of the Milanese agronomic genius and for that reason they are protected by the South Agricultural Milan Park and the Ticino Regional Park.



Figure 2 Map of 1865, conserved in the Major Hospital archive, with the shape of the water meadow: it was composed by 4 “squares” from North to South, subdivided into 3 parts. Today, 6 of them are still present

Unfortunately, they are in poor condition due to the lack of clean water and bad conservation of water regulation artifacts, their knowledge and respect by the citizens are limited. Moreover, the remains of the former agrarian efficiency (the numerous watermills on derivatives from Lambro), have been partly abandoned and partly transformed into social houses: farmsteads with their watermills and, their cereals fields and their meadow composed the landscape system until the design of the urban park in the thirties and the highway construction across agrarian plots.

From a social and occupational point of view, the project provided for an increase in jobs by training courses related to the creation of a new laboratory for processing agricultural products, a micro cattle farm, the increase in cultivating hectares of horticultural land, the reactivation and management of water meadows and its grass supply chain. People with intellectual and/or mental disabilities and migrants have been included in a real path so to be able to acquire both hard and soft skills (relationship between peers, between worker and employer, empathy, team) and practice the job in a protected context in order to effectively check one's skills and competences and improve them.

From a cultural point of view, the local community have been invited on site during open days in order to increase sensitivity and knowledge regarding the values of traditional agricultural work and their benefit in ecological and landscape terms; local schools have been encouraged to include water meadows landscape in their program and to participate to practical activity on landscape caring.

2.2 Actions implemented on water meadows

The restoration of the water meadows started in autumn 2021, the lawn and weeds were cut along the canals, in order to make visible the still existing hydraulic structures and the sediments of the canals (Fig. 3). The first attempt of letting water run, opening the Lambro locks, allows to understand the residual functionality of the locks and the amount of water capable of reaching the meadows. Some channels were remodelled by hand and mechanically, new wooden planks were made to close the joints and new small concrete joints for the waterers (Fig. 4). These activities were carried out by various people enrolled by the Cooperative: people "under test" after small crimes, people receiving citizenship income, minors in re-education (crimes), migrants. They were addressed and guided by the Ticino campari (watermen or water masters), partners of the project, who defined the methods and times of any intervention (Fig. 5).

From Spring to Autumn 2022 the course for campari took place and included several indoor and outdoor lessons both at the Cascina Biblioteca water meadow and at the Ticino Park, where the best practices on water meadow restoration and management had been conducted. The topics were followed by a practical activity and dealt to: reading the present landscape and understanding material permanence (reading historical maps and interpreting permanencies in terms of in terms of water, roads, artifacts, agricultural use of the soil, vegetation in rows or woods) and restoration method of historic water artifacts; managing water in water meadows; cows feeding with green grass (the ecology of the meadows, the cultivation systems of high environmental quality, the quality of milk and meat from cattle fed with green grass forage) and managing plain pastures (how to lead it today, the Herdsman 2.0). About fifteen people participated: in addition to the workers of the Cascina Biblioteca, interested citizens of



Figure 3 The water meadows before the restoration in autumn 2021
Source: author's photo



Figures 4–5 Mechanical and manual work made by water masters and the unemployed people
Source: author's photos

the neighborhood who heard about Lambro Park water meadow but never seen it, agronomists who wanted to deepen the water meadow technique, environmental guides eager to introduce also the tale of water meadows in their educational programs (Fig. 6).

During Spring 2022 and 2023 four local schools (primary, secondary and 2 high schools,) have been trained to care the landscape: dig and clean hydraulic artifacts, collect urban waste brought by water, remodel with the shovel the edge of canals to allow water flow (Fig. 7–8).

On 25 of March, at the end of submersion period, about 50 people, farmers among them, local authorities, water meadow experts, and enthusiasts conveyed for celebrating the water meadow restoration and the launch of the association “Water meadow friends” (Fig. 9–10).

3 Results

The results have been calculated mainly in term of social benefits; indirect environmental, economic, and educational benefits have been provided as well. One of the main results has been the selection as best practice in the stakeholder’s consultation of UN Habitat program in 2022.

3.1 Social benefits

After they having cleaned the meadow and remodeled the canals with spade and shovel, despite the physical fatigue they were not used to, the people in work placement appreciated the moment of watering, the outcome of their work and the possibility of recovering a public good. Even the people ‘under test’ (people who committed “light” crimes, who have to asked to demonstrate their penitence with a community service) appreciated the opportunity to be useful in helping the children carry out cleaning activities.

The caring of the meadow attracted the attention of park visitors who stopped to observe the agricultural works in progress; they asked for information and some people recalled past memories of other water meadows (the visitors’ opinions have been informally gathered during the restoration and maintenance phase by all the participants of the project). Some signs have been affixed to recommend not to cross the meadow with dogs and to respect agricultural work.

There was also a catalytic effect of the past Milanese campari experiences, who came to get informed about the ongoing project and participated with passion in

CAMPARI SI DIVENTA IN "BIBLIOTECA"
GESTIRE IL PAESAGGIO DI PRATI E ACQUE

PARTE I - Raccontiamoci il sapere
 Milano - Cascina Biblioteca
 Giovedì 1 marzo 2022
Leggere il paesaggio per coltivarlo

Oronzo - Casa Saba/Maglio
 Giovedì 10 marzo 2022
L'acqua irrigua: il suo utilizzo tra paesaggio e cambiamento climatico

Oronzo - Casa Saba/Maglio
 Giovedì 1 aprile 2022
Il modello circolare della coesistenza dei prati

PARTE II - con forza e fedeltà
 Monto Vacanzi
 Centro Parco Genasi
 Con i ragazzi in servizio civile al Parco dell'Orino
 Giovedì 4 aprile 2022
Il pascolo in pianura come in montagna: per il benessere dei bovini e la salute dell'uomo

Milano - Cascina Biblioteca
 Con i maestri di Cascina Biblioteca
 Giovedì 9 maggio 2022
I manufatti idraulici: saperi e conoscenze del patrimonio tangibile

Oronzo - Molino del Maglio
 Con i maestri campari del Ticino
NOVEMBRE 2022
Gestire la marcia: colatori ed adacquatori accompagnano l'acqua

Raccontare il sapere delle mani per re-impararlo
 Il presente ciclo di incontri ha la finalità formativa di incrementare la conoscenza delle tecniche e delle buone pratiche della tradizione agricola lombarda nella gestione dei prati da foraggio ed in particolare dei prati irrigati in inverno (marcato). A questo si affianca l'obiettivo di "raccontare" la sostenibilità di un modello produttivo zootecnico che nasce dal passato e oggi è estremamente innovativo. Tali incontri sono rivolti a tutti, anche se l'obiettivo è principalmente quello di formare degli operatori sul campo nel progetto "La grangia di San Gregorio" finanziato da Fondazione Cariplo, Bando Coltivarci Valore. La formazione si avvale quindi di strumenti diversi dai primi incontri teorici in aula con visite in campo, alla "formazione operativa" con praticanti gli esperti, anche alla possibilità di collegamento on remoto per chi fosse solo curioso di sapere meglio...

Note Tecniche
 Le lezioni in aula sono limitate a 25 posti, gli iscritti oltre i 25 partecipanti potranno seguire gli incontri in streaming (link all'iscrizione).
 Le lezioni in campo sono limitate a 10 persone per motivi logistici.
 Se le adesioni saranno numerose si cercherà di organizzare una replica.
 I corsi si svolgono la mattina dalle 9 alle 13.
 Parte teorica dalle 9 alle 11 - Parte pratica dalle 11 alle 13.
 Richiedi i CFU per Dottori Agronomi ed Architetti.
 Previsto attestato per i cooperatori, i disoccupati e gli agricoltori Info-G. Molino 348783746. Iscrizioni: giornateinbiblioteca@caib.it
 Con il modulo scaricabile e comparabile che trova al seguente link: <https://www.casinaibiblioteca.it/vostra-attivita/campari-si-diventa-in-biblioteca/>

Partners: Parco Ticino, UNESCO, Fondazione Cariplo, Politecnico di Milano, Parco dell'Orino, Cascina Biblioteca, Parco Genasi, Molino del Maglio, Parco Saba/Maglio.

Figure 6 Program of the course for new watermen hold from March and November 2022

20 April 2023 by the journalist Silvia Zerilli on Rai 3 the regional edition of the National television), stating the abundance of birds populating the water meadows and the increasing quality of landscape.

3.3 Economic benefits

The most encouraging result was that seven people obtained a job at Cascina Biblioteca cooperative. The grass production was not remarkable, and comparable to a common meadow: after the first winter watering, the first year they harvested only one time due to the summer drought and the limitation in watering, the second year they harvested twice. The production fed Cascina Biblioteca's horses.

3.4 Educational benefits

Ten university internships have been activated by Politecnico of Milan among master science students in architecture and landscape and five by Ticino Park among graduated people in environmental sciences.

Approximately 400 students from primary to high school learned how to recognize a landscape heritage close to home and take care of it: clean the path and canals from the urban waste, remove leaves, dig the canals around the hatches, clean the hatches made of brick from earth and re-discover the bottom of canals made of stone.

some activities: they met the Ticino's campari, discussed the difficulties and potential of: recovering today the water meadows, the water supply, the water meadows' purifying power, and the profitable use of water meadow grass.

3.2 Environmental benefits

After two years of work, a consistent increase in biodiversity was observed, especially in terms of birdlife, insects, and butterflies. Nonetheless

a dedicated monitoring of birdlife have not been forecasted while the aim of the project was mainly social. The effects were so visible not only at the micro scale but also at the macro scale, so as to attract the attention of press and television journalists at the local edition of the national newspaper (Press report written by the journalist Giovanna Fagnani on Corriere della Sera, Milan edition, on 20 of January 2022) and national television (Television report made on

4 Discussion and conclusion

The experience acquired by the Grangia S. Gregorio project demonstrates that:

1. a degraded area can be recognised as heritage,
2. a landscape heritage can be recovered,
3. it can produce jobs,
4. it has a strong social impact on various fragile categories.



Figures 7–8 High School students involved in modelling the canals with the shovel and University students engaged in cleaning hydraulic artifact
Source: author's photos



Figures 9–10 The open event celebrating the restoration of water meadow at the traditional end of winter submersion (25 of March)
Source: author's photos

Therefore, the aim of the pilot-project has been achieved. Moreover, during the presentation event on 24/03/2023 at the end of the second winter submersion period, many stakeholders, common people, experts gathered under the flagship of Marcite Enhancement. People appreciated the high sensory quality of the recovered landscape: the orderliness and cleanliness of the canals, the shine of the green grass, the brightness and smoothness of the clean water, the presence and singing of birds. The people participation raised Municipality's attention, that recognized the high social and cultural value provided, especially the educational benefits: Municipality with University are going to consider a joint management with the social cooperative of this productive landscape and to include didactical visit to water meadow in each student curricula.

So, in order to answer the initial question, a landscape heritage can change from a burden into an economic and social resource.

It is important to work on the tangible part of the landscape, the recovery of the materia, and on its intangible part, the transmission of the practice. It means transferring the knowledge of the management technique, the everyday and the occasional activities, the way to use agricultural tools. While landscape, due to its dynamism and changeability over time, needs constant attention, the transmission of technique since the beginning of recovery phases is essential to keep the landscape alive.

At the same time, it means understanding the role of agricultural heritage in the present city and the opportunity of mitigating effects of climate change, especially floods with an accurate water management, heat islands with an increase of green areas, and urban crop simplification with a growth in bird, and plant biodiversity. Encouraging new jobs able to maintain ancient agricultural structures allows to recover and maintain more landscapes able to provide positive environmental effects on more area and more social benefit to the present society.

Actions on landscape involving social, economic, and environmental aspects fully meet the sustainable development goals (SDGs 6, 10, 11, 12). The recovery of the historical landscape heritage in its material consistency and management techniques proves to be a resource to accomplish the objectives and offer answers to climate change mitigation. Ultimately, historical heritage responds to the needs of contemporary society.

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