



REPORT ON MANAGEMENT TOOLS IMPLEMENTATION

- High Modenese Apennine Regional Park
- Salse di Nirano Natural Reserve

D.T2.3.2 -Emilia-Romagna Region (PP01) -
Central Emilia Park's Managing Authority

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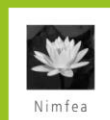




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1. General information

1.1. General introduction to the Action Plan and strategic objectives

The Central Emilia Park's Managing Authority (Ente di Gestione dei Parchi e la Biodiversità Emilia Centrale) has joined the Interreg CEETO project "Central Europe Eco-Tourism: tools for nature protection" - CE 926 with the aim of testing a model of governance of tourist flows within protected areas in order to reduce environmental impacts and improve the socio-economic benefits that can result from a sustainable tourism approach.

Two Pilot Areas were therefore selected for the implementation of the Interreg CEETO project: the Pilot Area of the Lago Santo modenese within the Regional Park Alto Appennino Modenese and the Nature Reserve of Salse di Nirano.

The pilot area of Lago Santo Modenese is characterized by a high tourist presence, especially in July and August. The area is experienced by visitors mainly for its recreational use, less like a treasure of natural value and landscape, especially out of season.

The main problem is, in fact, related to traffic congestion, overcrowded parking and lack of safety along the access roads (both for trekkers and drivers). Moreover, visitor behaviour, which is not always adequate (illegal camping), contributes to a general sense of chaos and disorder.

The pilot area of Salse di Nirano, on the other hand, is characterized by a high level of enjoyment by visitors throughout the year. The main objective was therefore the conservation and protection of the Reserve, accompanied by the preparation of a varied and well-structured offer of educational and play activities for schools, families, associations. In the Nature Reserve of Salse di Nirano, it was strategic to acquire as much data as possible to document the main factors of threat to the Reserve deriving from poor or incorrect use even by visitors, in support of possible and possible defensive actions, to accompany what already exists.

The main challenge faced by the Emilia Central Authority has been to ensure that the Sustainable Tourism Action Plan could become the basis for evaluating adherence to the European Charter for Sustainable Tourism (CETS - Methodology and certification issued by the EUROPARC Federation).

1.2. Forum (update)

Starting from the experience of the CEETO Project, the Central Emilia's Parks Authority decided to face a new challenge: that of achieving the certification of the European Charter for Sustainable Tourism, for all the 8 protected natural areas it manages. This experience matured a new way of collaboration with local stakeholders to define and share an action plan. The Forum Members are a group of subjects that includes tourist administrations / resorts, public administrations and institutions, local and territorial voluntary associations. These stakeholders are the main driving force behind the development of sustainable tourism. As regards the Alto Appennino Modenese Regional Park, the methodology used to manage the meetings, following the CBW produced for the CEETO project (DT2.2.1), was inspired by the EASW Workshop - European Awareness Scenario Workshop, an approach that allows an open discussion in order to identify concrete and easy to implement solutions. Each meeting focused on a specific area of the Park territory, with different critical aspects to be addressed:



1. Meeting in Fanano, held in 10.10.2018, pilot area of Lago di Pratignano (13 participants);
2. Meeting in Pievepelago, held in 11.10.2018, pilot area of Lago Santo Modenese (19 participants)
3. World Cafè in Pievepelago, held in 22.11.2018, pilot area of Lago Santo Modenese (13 participants).

In the High Appennines Regional Park the activity related to the Future Search has gathered 16 "visions" of the area: positive and negative aspects of the tourism impact on the area allows an open discussion in order to identify concrete and easy to implement solutions.

In the Lake Santo Area we had to meet twice because we needed to discuss action plan more in details with the stakeholders: the presentation of the Pilot Action proposal by the Park director initiated a debate among the participants, dividing the participants into two factions with respect to the opportunities for action to be taken in the area

Following an internal reflection by the Institution, aimed at reshaping its proposals in light of the result of the first meeting, the Park proposed a new moment of confrontation, the *World Cafè Workshop*, held in the Municipality of Pievepelago on 11/22/2018, where each participant was given the opportunity to propose his own scale of action priorities. From this experience we've realized that it's very important to involve stakeholders in our projects /decisions with periodic meetings and on strategic issues. This type of involvement encourages more responsible participation in more transversal projects or initiatives that take account of conservation and protection aspects as well as sustainable tourism planning.

The pilot area of the Salse di Nirano Nature Reserve was identified at a later date, following the impossibility of implementing the planned pilot action at Lake Pratignano and it was not possible to carry out the participatory process as it was carried out in the High Appennines Regional Park.

On 19 March 2019, the institutions publicly shared and proposed to the active associations already involved in the territory of the Salse di Nirano, as stakeholders of the area. These stakeholders are, in fact, the main driving force behind the development of sustainable tourism within the Reserve. This was possible because the dialogue and the comparison between the bodies, the associations and the interested parties in the Reserve area, are however already consolidated, since the Stakeholders are already an active part in the territory of the Salse di Nirano. The pilot action was in fact received with interest and favor, entering with consistency between the activities and projects already underway in the protected area.

1.3. Stakeholders involvement in the Action Plan

The Forum Members are a group of subjects that includes tourist administrations / resorts, public administrations and institutions, local and territorial voluntary associations. These stakeholders are the main driving force behind the development of sustainable tourism. The Administration has decided to involve them in the definition and elaboration of actions for the Sustainable Tourism Action Plan for each pilot area, inviting them to contribute ideas and time in the implementation of actions for sustainable tourism. Participatory process for the development of the Action Plan for Sustainable Tourism makes possible to establish more solid and collaborative relationships with stakeholders.



2. Sustainable Tourism Action Plan

2.1. How would you assess your overall progress towards in sustainable tourism, bearing in mind where you started?

Starting from the experience of the CEETO Project, the Central Emilia's Parks Authority decided to achieve the certification of the European Charter for Sustainable Tourism, for all the 8 protected natural areas it manages. The procedure started in April 2019 and will conclude at the end of the 2020. In this path, the 2 Pilots Actions tested through the CEETO Project will be a strategic example both from the point of view of tourism development and conservation of the territory. Most of all, the experience matured on this new way of collaboration with local stakeholders to define an action plan based on a thorough analysis of the local situation, will be very useful for the success of the ECST initiative.

2.2. Have the actions provided for in the plan so far been implemented? If not, why?

The pilot area of the Salse di Nirano Nature Reserve was identified at a later date, following the impossibility of implementing the planned pilot action at Lake Pratignano and it was not possible to carry out the participatory process as it was carried out in the High Apennines Regional Park.

2.3. What were your most positive achievements? And the main challenges you still face?

For the area of Lake Santo in Modena, it is strategic to share the results of the monitoring with all the local stakeholders who have played an active role in the experimentation, i.e. the Municipality, in order to understand how to implement in a more structured way the actions experienced in the coming years and make them consolidated over time. The promotion of alternative accessibility systems should have significant impact on the reduction of private motor vehicles that travel to the parking lot of Lake Santo.

For the area of Salse di Nirano, it is essential to understand if possible and where to replicate the experimentation of the VCA NEMOS system (Nature rEserve MOnitoring System) as a data acquisition system on the use and possible threats that a protected area may incur.

2.4. Describe the monitoring you have undertaken of the results of your Action Plan.

The data acquired at Lake Santo modenese will be used to replicate and improve the initiative experimented in the summer period in collaboration with the Municipality of Pievepelago. Through the monitoring system implemented, it was possible to:

- Encourage sustainable forms of accessibility instead of the private car;



- - Acquire a better knowledge of the characteristics, choices and degree of awareness of visitors regarding the specific nature of Lake Santo area;
- - Make visitors responsible for their own behaviour in the Park, through adequate information on the correct rules of conduct.

The data acquired at the Salse di Nirano allow us to identify the weakest points of the fence system and statistically more used by the intruders. It will be possible to study a suitable signage that tries to dissuade intrusion actions and then monitor, with the same toll of VCA, if the number of intrusions or the points of intuition are reduced or changed.

The results of monitoring can be found in other CEETO deliverables: **D.T2.4.3** - Report on Monitoring Workplan Implementation and **D.T2.5.1** - Pilot Actions Final Report.

2.5. Updating strategy and actions, the process(es) and timetable(s), making reference to the Forum and the involvement of local stakeholders.

The main challenge faced by the Emilia Central Parks Authority is the adherence to the European Charter for Sustainable Tourism undertaken in April of this year. As part of the process of applying for the European Charter for Sustainable Tourism, the Emilia Centrale Parks Authority considers the 2 Pilots tested through the CEETO Project to be strategic both from the point of view of tourism and conservation of the territory.

Both pilot actions have provided actions for the development of sustainable tourism providing for collaboration between all stakeholders to develop a common strategy and an action plan based on a thorough analysis of the local situation.



3. Management tools/procedures

3.1. What management tools/procedures have you used? (not only in your Pilot Actions)

Methodologies implemented:

In lake Santo, surveys were distributed:

- At the InfoPoint located near Lake Santo Modenese and in Pievepelago set up with different communication materials (roll-up and posters);
- at the stops of the shuttle service;
- from its website (www.parchiemiliacentrale.it).

Another monitoring data on tourist attendance comes from the number of tickets printed by the parking meters of the parking lot of Lake Santo.

In Salse di Nirano, Video Content Analysis (VCA) system called NEMOS - Nature rEserve MOnitornig System was tested, equipped with automatic data extraction algorithms that make use of Artificial Intelligence to monitor and document the main threat factors supporting possible defence actions.

3.2. Cooperation with other competent bodies in the implementation of management activities

For lake Santo, collaboration with the Municipality of Pievepelago in order to understand how to implement in a more structured way the actions experienced in the coming years and make them consolidated over time.

For Salse di Nirano, collaboration with the Municipality of Fiorano Modenese in order to install the VCA system and to consolidate the dialogue and the comparison between the bodies, the associations and the interested parties in the Reserve area.

3.3. Assessment of strengths/weaknesses about management tools/procedures used

In the Lake Santo Area, after a more complex phase of consultation than expected, in the definition of the Action Plan and the Pilot Action, the rest of the implementing process has not seen substantial deviations from what was planned.

The pilot area of the Salse di Nirano Natural Reserve, instead, was identified at a later date, following the impossibility of implementing the planned pilot action at Lake Pratignano (located in the same Regional Park as the Santo lake), where the participatory process was conducted as expected by the CEETO Project Capacity Building Workplan (D.T2.1.1) forecasted. The VCA system application for the monitoring of natural areas, that was forecasted to test the methodology to monitor the Pratignano's Lake shores (following the Inventory of Monitoring Tools - D.T1.2.1), found, in any case, a perfect setting



also at the Salse di Nirano Area. The real deviation, in this way, was basically the absence of the participatory process and the public presentation of the Pilot Action essentially defined.

Technically speaking, the NEMOS system had a black-out in the period 12/09/2019 to 19/09/2019 due to some connectivity works on the installation site of Cà Rossa, on which the system's power supply depended; so, this fault was independent by the service provider. In addition, there were some further technical problems:

- Camera1: on 20/08/2019, a technical problem blocked the camera for the whole day;
- Camera3: in the first days, until 22/07/2019, the view shot was too wide, and the fence caused problems in detecting people. A zoom was made to have more detail and to allow the neural network (Artificial Intelligence algorithm) to work properly.
- Camera3: on 23/09/2019 a technical problem caused a partial recording of the data of that day.

The remote connection of the cameras and the portal for data consultation, allowed the company - Vision-e, to face the problems and to solve them promptly, reducing at the minimum the data loss that, for the whole period of the CEETO Pilot Action, have been very moderate. In the following period of monitoring (since the System will keep-on acquiring data), due to the maturing system, it's expected that the data loss will be even less.

3.4. Have you identified other innovative tools/procedures?



At the Salse di Nirano site, near the Cà Rossa Ecomuseum, 3 cameras have been installed, 2 framing the two small volcanoes in front of the house and the access road to Zone A for full protection and the last framing the reserve's pedestrian walkway and a third small volcano.

The cameras are connected to an automatic data processing and extraction unit, which uses state-of-the-art Artificial Intelligence algorithms. The system, in addition to monitoring (quantifying and qualifying) the actual use of the area, also documents the main factors of threat to the Nature Reserve of Nirano Saucos, to support the design of possible actions of defence.





4. Implemented Action(s)

4.1. Action 1: “Liberiamo il lago” in lake Santo modenese

A) Brief description of the action (tools/procedures)

The pilot area of Lago Santo Modenese is characterized by a high tourist presence, especially in summertime (July and August). The area is experienced by visitors mainly for its recreational use, less like a treasure of natural value and landscape, especially out of season.

The main problem is, in fact, related to traffic congestion, overcrowded parking and lack of safety along the access roads (both for trekkers and drivers). Moreover, visitor behaviour, which is not always adequate (illegal camping), contributes to a general sense of chaos and disorder.

As part of the CEETO project in the pilot area of Lago Santo modenese, the governance strategies that the managing body agreed to implement with the involved stakeholders were related to three important sustainability cornerstones: 1) better mobility in the area; 2) tourist awareness improvement; 3) Seasonal peak flow redistribution (deseasonalisation).

For the mobility purpose the Action Plan implemented:

1. Free shuttle service from Tagliole for 2 busiest weeks (10th to 25th of August);
2. E-bikes, can be hired in Tagliole and used to get to Lake Santo Modenese, return can be by the same bicycles, shuttle bus or on foot
3. Restoration and securing of the path from Tagliole to Lake Santo: opened at the end of July 2019 and currently practicable in its total length (3.5 km).

The tourist awareness improvement was necessaire since most of them are daily “excursionists” (using the “” is not accidental), since few of them really enjoy the area for naturalistic leisure purposes but they reach the area, usually by car, with the only purpose to escape the summer heat and go to have lunch in the local refuges (at few hundreds of meters from the parking area), but that pay very little attention to the nature of the places. For this issue, the Action Plan followed the purpose to raise the tourist’s awareness of the naturalistic peculiarities and fragility of the area. To this purpose the managing authority thought to take advantage of the monitoring activities at the parking, to not only obtain information from tourists but also to improve their awareness by explaining the correct rules of conduct and foster a more responsible behaviour within the Park.

The third purpose was to distribute tourist over a longer period of time (seasonal adjustment), especially during the autumn and winter, and develop some activities in order to improve a more conscious use of the sustainable territory and low emission transport and promote tradition and hospitality throughout the area of the Tagliole valley.

B) Strategic reference objective

In the **Lago Santo Modenese** area, the monitoring objective had to concerned:

- The promotion of sustainable forms of accessibility instead of the car, to reduce traffic congestion between the village of Tagliole (1’158m a.s.l.) and the end of the road at Lake Santo parking (about 4.5 km - 1’470m a.s.l.);



- Use the parking and the InfoPoint, to acquire a better knowledge about the characteristics, choices and degree of awareness of visitors about the specific nature of the Santo Lake and its natural surroundings.

C) Monitoring tools and management procedures activated

The monitoring of changes in the use of the area will be carried out:

1. as regards the reduction of car access to the Lago Santo car park, it had to be confirmed by the number of tickets issued by parking meters for a parking fee (which will be compared with data from past summer seasons);
2. the evaluation of the number of people who will benefit from the alternative routes to reach the area of the Santo Lake, will be based on the e-bike rental data, on the number of people transported by the shuttles that will depart from Tagliole (or even from the village of Pievepelago), with destination Lago Santo and an indirect estimate of the number of hikers who will use the reopened hiking path that joins Tagliole to Lago Santo.

A paper survey was conducted among visitors of the Lake Santo Modenese area, with the aim of collecting this information:

- Identity (age, sex, residence);
- The tourist behaviour (visit during the day or with overnight stay, if not inhabitant of the place), the choices in terms of overnight stay (place and type of accommodation) and the duration of the stay;
- The means of transport used to reach Lake Santo Modenese and the availability to use alternative modes (shuttle, e-bike or hiking trail);
- The awareness of being in a Protected Area and the existence of specific rules of conduct;
- The activities usually carried out during the visit to Lake Santo Modenese.
- For those who used the Shuttle service, an evaluation on the quality of the shuttle service has been inserted.

The complete questionnaire is available as annex to the deliverable D.T2.4.3.

The survey was carried out between July and September 2019 and the questionnaires were distributed to:

- The InfoPoint located near Lake Santo Modenese and Pievepelago;
- The shuttle bus stops;
- The headquarters of the Ente Parchi Emilia Centrale di Pievepelago, with the possibility of downloading them from the website (http://www.parchiemiliacentrale.it/pdf/Questionario_LagoSanto.pdf).

Incentives were provided to tourist to fill in the questionnaires, such as the gift of a canvas bag, marked with the logos of the Park and the CEETO Project, and a pen to those who answered the questionnaire during the shuttle journey.

Another monitoring data on tourist attendance comes from the number of tickets printed by the parking meters of the parking lot of Lake Santo.



D) Stakeholder involvement

In the High Apennines Regional Park, the activity related to the Future Search has gathered 16 "visions" of the area: positive and negative aspects of the tourism impact on the area allows an open discussion in order to identify concrete and easy to implement solutions.

The *World Cafè Workshop* held in the Municipality of Pievepelago on 11/22/2018 proposed shared solutions on different strategic themes and each participant was given the opportunity to propose his own scale of action priorities.

(PRIORITY 1) - Seasonal adjustment of the tourism offer;

(PRIORITY 2) - Information, education and control;

(PRIORITY 3) - Accessibility, mobility and trekking paths ;

(PRIORITY 4) - Conservation, protection and monitoring of the environment and landscape

(PRIORITY 5) - Hospitality, tradition and local typical productions.

E) Specific results

The data acquired at Lake Santo Modenese will be used to replicate and improve the initiative experimented in the summer period in collaboration with the Municipality of Pievepelago. Through the monitoring system implemented, it was possible to:

- Encourage sustainable forms of accessibility instead of the car
- Acquire a better knowledge of the characteristics, choices and degree of awareness of visitors regarding the specific nature of Lake Santo area,
- Make visitors responsible for their own behaviour in the Park, through adequate information on the correct rules of conduct

For the area of Lake Santo in Modena, it is strategic to share the results of the monitoring with all the local stakeholders who have played an active role in the experimentation, i.e. the Municipality, in order to understand how to implement in a more structured way the actions experienced in the coming years and make them consolidated over time. The promotion of alternative accessibility systems should have significant impact on the reduction of private motor vehicles that travel to the parking lot of Lake Santo.

4.2. Action 2: “Riserva riservata” in Salse di Nirano Nature Reserve

A) Brief description of the action (tools/procedures)

The pilot area of Salse di Nirano is characterized by a high degree of frequentation throughout the year, mostly by daily excursionists. The main objective in the sustainable tourism development was, therefore, the protection and preservation of the Reserve, accompanied by the preparation of a varied and well-structured offer of educational and play activities for students, families and associations. In the Nature Reserve of Salse di Nirano, it was strategic to acquire as much data as possible to document the main factors of threat to the Reserve deriving from poor or incorrect use even by visitors, in support of feasible defensive actions, that should be harmonized with the already existing activities.



At the **Salse di Nirano Natural Reserve**, the governance goals were concerned to:

- making visitors responsible for their own behaviour in the Salse di Nirano area, by providing them with adequate information on the correct rules of conduct;
- the protection and conservation of the local environment and landscape.

Video Content Analysis (VCA) system was tested, equipped with automatic data extraction algorithms that make use of Artificial Intelligence to monitor and document the main threat factors supporting possible defence action.

The implementation of this remote monitoring service has actively involved the Municipality of Fiorano Modenese and the collaboration as owner of the Cà Rossa Visitor Centre. The ancillary works carried out for the activation of the experimentation of the system called NeMOS - Nature rEserve MOonitoring System have been:

- Laying of UTP cable lines for outdoor use in existing piping for connection from the ENEL pole to the box in the Cà Rossa structure via a counter compartment;
- Certification of wired connection on LAN cables for the transmission of the measured data;
- Bracket of the cameras through the supply of new outdoor brackets with a special attachment on an existing ENEL pole.

B) Strategic reference objective

To this purpose, the objective of the pilot action was to collect data useful to a better planning of the activities aimed at protecting and preserving this unique and delicate area, its habitats and landscape in the best possible way. Actually, the data collected by the monitoring system, will be useful to plan visitor's sensitization actions and to stimulate correct styles and behaviours, inducing them to a responsible fruition of the reserve areas, and in particular area A, the most significant and delicate one.

Within the pilot area of the **Salse di Nirano**, the monitoring purposes were mostly aimed at improving the knowledge of managing authorities about the tourist presence and behaviours, to the purpose of planning suitable activities to steer the behaviour of visitors that access to the whole area, preserving its unique and fragile landscape.

C) Monitoring tools and management procedures activated

To the purpose: 1) monitoring the presence of excursionist in the area; 2) monitoring the main threats to the integral protection zone by fence crossing excursionists, and planning the right countermeasures to obstacle this behaviour, the use of a multi-Video Cameras system, was chosen. Particularly, the desired system was not just a video-recorder system: the need was to implement a system able to automatically identify, distinguish and count vehicles (cars, bikes, motorbikes), pedestrians and animals. Another purpose of the system was to acquire as much data as possible to document the main factors of threat to

the Reserve arising from poor or incorrect use even by visitors, in support of possible defence actions, to empower the existing ones.

At the **Salse di Nirano Natural Reserve**, near the Cà Rossa Ecomuseum, 3 cameras have been installed, 2 framing the two small volcanoes in front of the house and the access road to Zone A for full protection and the last framing the reserve's pedestrian walkway and a third small volcano.





The cameras are connected to an industrial PC, where is embedded an automatic data processing and extraction unit, which uses state-of-the-art Artificial Intelligence algorithms to recognize people, vehicles and animals. Such an architecture is called “Video Content Analysis (VCA)”. The system, in addition to monitoring (quantifying and qualifying) the actual use of the area, also documents the main factors of threat to the Nature Reserve of Salse di Nirano, to support the design of possible defensive actions.

D) Stakeholder involvement

The pilot area of the Salse di Nirano Nature Reserve was identified at a later date, following the impossibility of implementing the planned pilot action at Lake Pratignano and it was not possible to carry out the participatory process as it was carried out in the High Apennines Regional Park.

On 19 March 2019, the institutions publicly shared and proposed to the active associations already involved in the territory of the Salse di Nirano, as stakeholders of the area. These stakeholders are, in fact, the main driving force behind the development of sustainable tourism within the Reserve.

This was possible because the dialogue and the comparison between the bodies, the associations and the interested parties in the Reserve area, are however already consolidated, since the Stakeholders are already an active part in the territory of the Salse di Nirano. The pilot action was in fact received with interest and favour, entering with consistency between the activities and projects already underway in the protected area.

E) Specific results

The data acquired at the Salse di Nirano allow us to identify the weakest points of the fence system and statistically more used by the intruders. It will be possible to study a suitable signage that tries to dissuade intrusion actions and then monitor, with the same toll of VCA, if the number of intrusions or the points of intrusion are reduced or changed.

For the area of Salse di Nirano, it is essential to understand if possible and where to replicate the experimentation of the VCA NEMOS system (Nature rEServe MOnitoring System) as a data acquisition system on the use and possible threats that a protected area may incur.