



<p><b>PILOT ACTION AREA</b></p>	<p>The Management Authority of the Emilia Centrale Parks implements 2 pilot actions:</p> <ol style="list-style-type: none"> <li>1. "Setting the Lake Free" in the Lago Santo Modenese area, within the High Modenese Apennines Regional Park, and</li> <li>2. "Reserve Reserved" within the Salse di Nirano Nature Reserve</li> </ol>
<p><b>REASON FOR STARTING THE PILOT ACTION</b></p>	<p>The problems in the two protected areas chosen for the pilot action are of two types:</p> <ol style="list-style-type: none"> <li>1. The pilot area of the <b>Lago Santo Modenese</b> is characterized by a high tourist presence, especially in the months of July and August. The area is experienced by visitors mainly for its recreational use, less like a treasure of natural value and landscapes, especially "out of season". The main problem is therefore related to traffic congestion, overcrowded car parks and lack of safety along the access roads (both for trekkers and drivers). Moreover, visitor behavior, which is not always adequate, contributes to a general sense of chaos and disorder.</li> <li>2. The <b>Salse di Nirano</b> is characterized by a high level of enjoyment by visitors throughout the year. It is therefore strategic to implement a series of actions aimed at preserving, enhancing and improving the use of the area of the mud cones - Zone A (integral protection zone) - often threatened by phenomena of overcoming physical barriers and consequent trampling by visitors.</li> </ol>
<p><b>OBJECTIVES</b></p>	<p>The objectives of the pilot actions are:</p> <ol style="list-style-type: none"> <li>1. In the <b>Lago Santo Modenese</b> area, to offer and experiment alternative ways to reach the Lago Santo area, reduce traffic and vehicular congestion between the village of Tagliole and the end of the road at Lago Santo. Moreover, it has been recognized the need to increase the knowledge and awareness of the peculiarities and fragility of the places by tourists, who often reach the area only to escape from the summer heat, but pay very little attention to the nature of the area. To this end, it was necessary to control tourist flows and distribute them over a longer period of time (seasonal adjustment), especially during autumn and winter, and develop some activities in order to improve a more conscious use of the sustainable territory and low emission transport and to promote tradition and hospitality throughout the area of the valley of Tagliole.</li> <li>2. In the area of <b>Salse di Nirano</b>, given the high level of enjoyment by visitors throughout the year, the main objective concerns the conservation and protection of the Reserve with particular reference to Zone A (integral protection zone), alongside a varied and well-structured offer of educational and play activities for schools, families, associations.</li> </ol>
<p><b>MONITORING TOOLS USED</b></p>	<ol style="list-style-type: none"> <li>1. The monitoring in the <b>Lago Santo Modenese</b> area was carried out through the administration of questionnaires, distributed at the InfoPoint located near Lake Santo Modenese, at the stops of the shuttle service, at the headquarters of the Management Authority of the Emilia Centrale Parks in</li> </ol>



	<p>Pievepelago, with the possibility of downloading them from its website (<a href="http://www.parchiemiliacentrale.it">www.parchiemiliacentrale.it</a>).</p> <p>Another monitoring data on tourist attendance comes from the number of tickets printed by parking meters of the parking lot of Lago Santo.</p> <p>2. At the <b>Salse di Nirano</b>, on the other hand, a 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 actions. As can be seen from <a href="#">the explanatory video</a>, the system detects the transits of vehicles and people along the access road to Zone A (integral protection zone) and acquires the most data on any episodes of overcoming physical barriers and invasion of Zone A by both people and animal, resulting from poor or incorrect use. The images of the framed areas are then processed in "time-lapse" mode, for the seasonal evolutionary reconstruction of the landscape and the morphology of the lutivomi apparatus (mud volcanoes) in relation to other geodynamic parameters simultaneously acquired by other instrumentation present on-site within the competence of the University.</p>
<p><b>MEASURES AND ACTIVITIES</b></p>	<p>1. Within the <b>Lake Santo Modenese</b> pilot action, a paper survey was conducted among visitors, with the aim of understanding i) identity (age, sex, residence), tourist behavior (visit during the day or with overnight stay, if not inhabitant of the place), choices in terms of overnight stay (place and type of accommodation) and the duration of the stay, ii) the means of transport used to reach the area and availability to use alternative modes (shuttle, e-bike or hiking trail),iii) the awareness of being in protected area and the existence of a specific code of conduct, iv) activities usually carried out during the visit to Lake Santo Modenese.</p> <p>The survey was carried out in July, August and September 2019. Incentives have been provided to fill in during the shuttle journey. The expected results of this Pilot Action are two: i) to acquire detailed knowledge about the visitors (local residents, hikers and tourists) of the Lake Santo Modenese; ii) to evaluate the effectiveness of the previous pilot actions, related to the provision of a shuttle service and the implementation of an InfoPoint.</p> <p>2. Within the <b>Salse di Nirano</b> pilot action, video analysis service, aimed at monitoring the use of the Reserve, is structured using a system equipped with 3 video surveillance cameras, installed on a concrete pole and connected in a closed circuit via cable to a processing unit, equipped with Artificial Intelligence, which is responsible for analyzing the images and extract numerical data on people, vehicles and animals present. This system has been given the acronym NEMOS (Nature rEServe MOnitoring System).</p> <p>The service provides for the restitution, with spatial and temporal precision, of the following information: i) the number of people, divided by mode of transport, and the number of cars that travel the municipal road Via Rio Salse near the locality Cà Rossa, with distinction, where possible, the direction of travel. The system allows, in particular, the</p>



	<p>aggregation of data on an hourly, daily, weekly, monthly and overall basis, with reference to the entire monitoring period; ii) maps of the density of use (heat map) of the routes of visitors to Zone A of the Reserve; iii) the numerical and temporal evidence of the episodes of overcoming physical barriers and invasion of Zone A; iv) video recordings of overcoming events, for their entire duration and with the automatic distinction between incursions of people and animals, divided by size; v) the video in "time-lapse" mode of the framed areas for the seasonal evolutionary reconstruction of the landscape and the morphologies of the lutivomi apparatus.</p> <p>On September 1, 2019, an Open Day was organized, in collaboration with the Municipality of Fiorano Modenese and by G.E.Fi., Ecosapiens and Ideanatura, which included, in addition to a guided tour of the field of sauces and the visitor centers of the Reserve, the illustration of the VCA system, describing its objectives and how it works.</p>
<p><b>USE OF ACQUIRED DATA</b></p>	<ol style="list-style-type: none"> <li>1. The data acquired at <b>Lago Santo Modenese</b> will be used to replicate and improve the initiative experimented in the summer period, i.e. the possibility of envisaging, in collaboration with the Municipality of Pievepelago, initiatives to improve and make more sustainable access to the area of Lago Santo starting from the hamlet of Tagliole.</li> <li>2. The data acquired at <b>Salse di Nirano</b> allows to detect the type of the use and threats the Reserve must face from the point of view of sustainable tourism planning, i.e. information and data to understand whether to undertake targeted actions both in the field of environmental communication and education and for any works, structural interventions related to access to the area.</li> </ol>
<p><b>CONCLUSION</b></p>	<ol style="list-style-type: none"> <li>1. For <b>Lago Santo Modenese</b> area, it is strategic to share the results of monitoring with all the local stakeholders who have played an active role in the experimentation, i.e. the Municipality, associations for territorial promotion, owners of shelters and restaurants, 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.</li> <li>2. For <b>Salse di Nirano</b> area, it is essential to understand if possible and where to replicate the experimentation of the VCA NEMOS system as a data acquisition system on the use and possible threats a protected area may incur. At Salse di Nirano it will then be possible to share the data collected with the Municipality and the associations that oversee and "live" the area to evaluate, in a shared way, any defence actions and accompanying what already exists.</li> </ol> <p>Both pilot actions provided actions related to the principles of ecotourism and environmental sustainability, in line with strategies and principles that emerged within the ECST path. ESCT was launched for better management of protected areas and sustainable tourism development, providing collaboration between all stakeholders to develop a common strategy and an action plan for tourism development, based on a thorough analysis of the local situation.</p>

