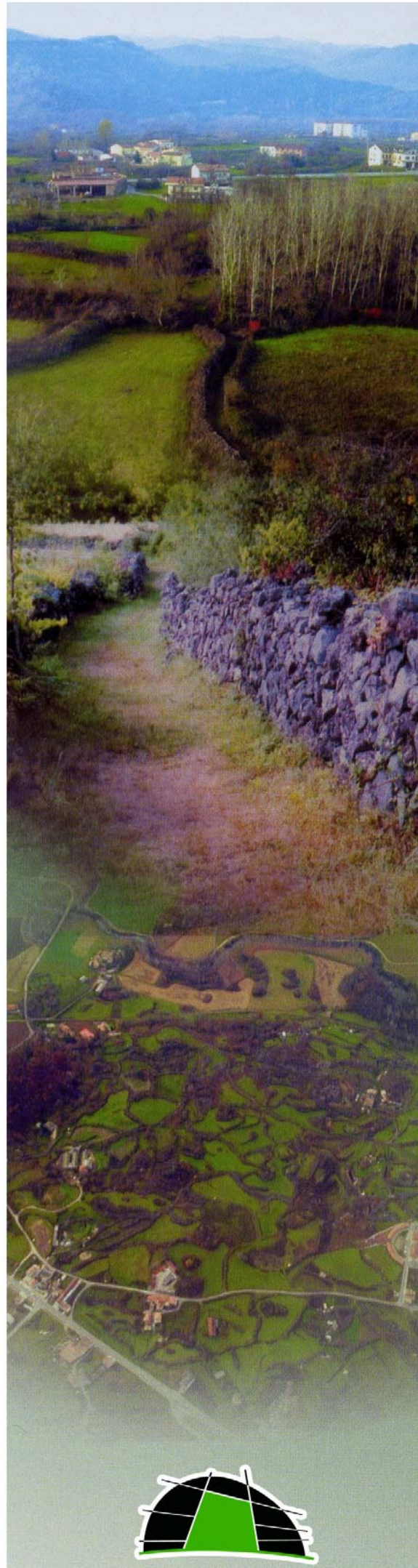


PARC DE PEDRA TOSCA

Layman report



LIFE02 ENV/E/000263



1. A Summary of the Area and the Objectives of the Project: Parc de Pedra Tosca

1.1. Area

Within the boundaries of the Natural Park of the Volcanic Area of the Garrotxa (PNZVG)¹, at the limits of the municipal areas of the towns of Olot and Les Preses, there is an area with a high degree of ecological value covering a 210.4628 hectare surface area which was formed by a lava tongue from the Croscat volcano which erupted some 11,500 years ago.

This area remained a Central European wood, largely of oak trees until, at the beginning of the 19th century, the forest was felled for use as charcoal and wood. This process was followed by the laborious task of constructing the “artigas”², which consisted in moving volcanic rocks to form small fields for crops. These were surrounded by dry-stone walls made from volcanic rocks.

Some of these artigas have refuge-like stone huts, made from volcanic materials, and which are a valuable architectural legacy.

The area is linked by innumerable volcanic dry-stone walled paths which form an extraordinary pattern of thousands of small cultivated plots with an arterial network of access paths.

This is the basis of the area of the **Bosc de Tosca** wood, a model volcanic landscape which has been humanised. Since 1985 it has been the subject of a Special Protection Plan.

1.2 A Description of the Problem

The landscape of the **Bosc de Tosca** has only narrowly escaped from the multitude of threats which face it as the area's degradation process was increasing rapidly and producing numerous problems:

The Degradation of Natural Resources: The effects of the peripheral growth of the town of Olot and the individual actions of landowners in the disorderly recovery of the farmland due to the fragmentation of the area and the properties themselves have caused:

- The use of crops and activities which caused contamination.



- Uncontrolled construction which was disordered and improvised and caused a problem with peripheral shanty town constructions.

¹ **PNZVG:** Located in the North East of Catalonia (Spain), in the province of Girona. This is the best-conserved volcanic area in the entire Iberian Peninsula, and one of the most representatives in Continental Europe. It has a surface area of 13,000 ha. which is shared among 11 municipal areas. It was made a natural park on the passing of Law 2/82 in 1982 by the Catalan National Government, the Generalitat de Catalunya.

² **Artiga:** A farmland plot arising from the breaking up of forest land. In the case of the Bosc de Tosca, these are small areas of stony land with a volcanic nature and origin which are used for farming.





- Illegal dumping, such actions affect the visual appreciation of the area, together with buildings, shelters, dumps, huts constructed with waste material, large areas of invading vegetation.

The Loss of Traditional Crops: The loss of a large variety of cultivated plants motivated by changes in the farming industry, and the introduction of alien varieties selected for their high production levels.

- The ignorance on the part of the local farmers with regard to ecological production techniques.
- Limitations on high productivity crops due to environmental restrictions in the natural park.
- The majority of the fields were abandoned or left for use as pasture.
- Vegetation was invading the area.



Water Use: The lack of irrigation water for farmland in the area.

1.3 The Objectives of the Project

The overall objective of the **Parc de Pedra Tosca** project is to revitalise the “Bosc de Tosca” by placing value on its environmental resources. The recovery of this natural area with its high environmental and ecological value, located within the Natural Park of the Volcanic Area of the Garrotxa. The preservation of the area from the danger of degradation caused by the peripheral growth of the town of Olot. This overall objective is determined in the following specific objectives:

- The undertaking of an intervention project for the recovery of the area whereby private landowners cooperated with public and private bodies in the use of these spaces in a generalised manner, so achieving the preservation of the area’s natural heritage, while contributing to the upkeep of biodiversity in the Natural Park of the Volcanic Area of the Garrotxa
- The setting up of a pictorial scenic park through the construction of different thematic itineraries.
- The recovery of traditional crops which are not aligned with the logic of productivity, and which are selected using criteria based on environmental benefits. The promotion of ecological criteria with respect to the use of the soil, vegetation, fauna, and typical constructions such as stone shelters and dry-stone walls made from volcanic rock.
- The promotion of ecological tourism and the promotion of an environmental educational strategy.
- The control and management of the water resources in the area.



2. The Methodology Applied and the Results Obtained

The *Parc de Pedra Tosca* project, is, more than anything else, a demonstration project. The area concerned affects two municipal areas within the Natural Park of the Volcanic Area of the Garrotxa: Les Preses and Olot. It must be taken into account that the surface area of the project only affects 10% of the Bosc de Tosca.

Technical Solutions

The objective of recovering and placing value on a highly valued environmental resource was developed through a series of procedures, methodologies and specific techniques. The objective, the procedures and the techniques constitute an innovation from which the following must be taken into account:

- The creation of a pictorial scenic park.
- The facilitation of water to the artigas.
- Recovering the use of traditional crops. Farming production methods which respect the environment.
- The adaptation of a logistic rest area.
- Awareness and education in order to achieve a change of attitude with relation to the environment.



Recovery actions were carried out in the project area with the removal of areas of dense vegetation, thorn beds, bushes and rubbish which were covering the land, to reveal the unique landscape of this area which is formed by mounds, banks, and winding pumice stone walls.

The removal of rubbish and dense vegetation has facilitated the recovery, protection and restoration of walls, shelters and artigas, with the added benefit that the ecological characteristics of these

constructions form a rich biotope for both flora and fauna. The conditioning of the access paths to and from the artigas in order to carry out actions involving the introduction of traditional crops.

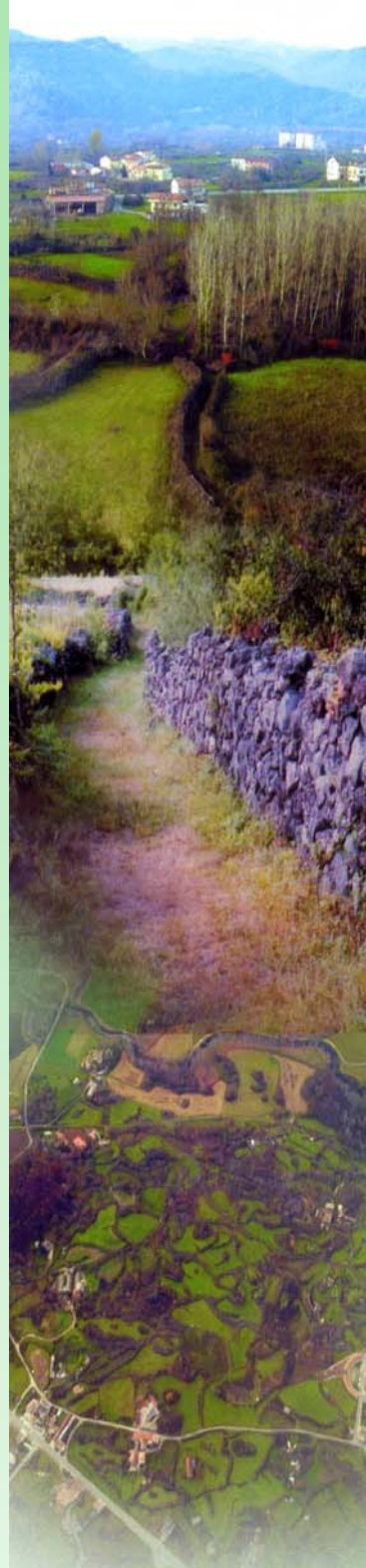
The result of this task has been the configuration of the "Parc de Pedra Tosca" in which actions of recovery and intervention have been undertaken with the cooperation of private landowners with public and private entities. This has achieved the preservation of the Natural Heritage and has contributed to the maintenance of the biodiversity of the Natural Park of the Volcanic Area of the Garrotxa.

26 hectares of the Bosc de Tosca have been improved, avoiding the degradation process in this area. Rehabilitation and signs to shelters and dry-stone walls (70% of those existing). The halting of the invasion of this area (peripheral shanty constructions, harmful practices and crop use, illegal dumping). The defining of a clear limit between the city and nature.

A **Pictorial Scenic Park** has been created through the construction of thematic itineraries and sign-posted working points, using descriptive information boards. This has facilitated visits to the different areas and helps visitors to get an overall idea of the character of this area.



The creation of a "Nature Reserve" has been achieved. This attracts a large number of experts and scholars, architects, geologists and artists who come to view, study and illustrate the landscape, thus promoting an integration of cultural and artistic activities with environmental resources. An old wayside train station, the "Baixador de Codella" has been adapted as an information, documentation and educational resource centre.





With respect to the characteristics of the areas and the walking route, strategically located artigas are reserved for the introduction of traditional crops, process which is not aligned to the logic of consumer productivity. The crops are selected, taking their environmental benefits into account, their attractiveness in the landscape and their potential to provide an educational value.

The Recovery of Traditional Crops

Research into the basic farming characteristics of the artigas was carried out by means of chemical analysis, using randomly selected samples. It was determined that almost all the artigas were apt for traditional cultivation.



Before the recovery of these plots for crop growing within the Parc de Pedra Tosca could begin it was necessary to begin with tasks of clearing and land improvement. Plant material from the unwanted vegetation was processed and scattered over the ground to provide a source of slow decaying compost material, an accepted practice which does not hinder farm work. Weeds were controlled through the use of hoes in the crops and tilling in fallow land.

In order to balance the N/C (Nitrogen / Carbon) relationship fenugreek was planted with the cooperation of trainee students from the agricultural studies faculty of the Garrotxa Secondary School Institute. Fenugreek was selected due to its well known aptitude for providing the soil with nitrogen. Rye was also planted, a plant traditionally grown in the area. Both crops were planted into the soil whilst they were still green.

The consolidation of farming in the recovered artigas was obtained with the planting of *extensive traditional crops in regression* which are only present in small family plots, but which for many years were of the greatest importance in family farms. Such crops include buckwheat, clover, lupins, rye and rape. In another aspect these crops had, and still have a great deal of importance in local artistic sectors when in flower, and have been frequently represented in local illustrations.

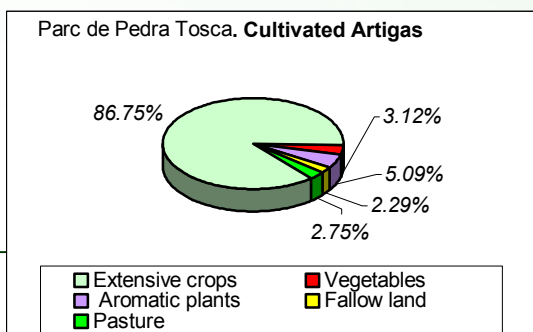


Vegetables such as potatoes, onions, beans and two varieties of maize have also been added to the list of extensive crops.

New crops of aromatic and medicinal plants were also introduced, such as mint, sage, lavender and thyme with both farming and environmental objectives. The rapid adaptation of these plants to the soil in the Bosc de Tosca area has facilitated their cultivation.

Extensive cultivations are the most representative in the park now take up 86.75% of the cultivable area. The farming of aromatic or medicinal plants only accounts for 5.09% of all crops grown.

During the farming more work than anticipated was needed in order to control weeds. The crops however developed correctly, a fact confirmed by experienced



traditional farmers, and visitors, who gave a positive evaluation to the general appearance of the Parc de Pedra Tosca.

The implantation of demonstration artigas puts environmentally-friendly crop conservation techniques into practice. This facilitates knowledge of the process to the owners of the artigas and others interested through the transfer of these practices to other artigas or plots, and therefore promotes the propagation of soil-sensitive management techniques for those crops which are grown in the area of the Parc de Pedra Tosca.

Manual labour has been necessary in order to carry out an important part of the tasks due to the frequent difficulty involved in transporting large machines from the area to the artigas. Planting, seeding and weeding were carried out by hand.

Traditional environmentally friendly agricultural techniques have been re-established, and 100% ecological farming practices have been applied in all the recovered artigas.

In order to provide water to the artigas and alleviate short-term drought conditions, a retention and distribution system using underground water, with the construction of a well and a tank connected to the irrigation network was created.

Farmland recovery has been carried out in conjunction with the reforestation of those areas with the greatest visual impact using native plant species: oak, fruit trees and species of river trees and old vine stumps which border on the perimeter walls of the artigas.



The recovery of 48 farming artigas and traditional environmentally-friendly farming techniques, the application of ecological agriculture, the training of future farmers with sustainable management techniques, and the awareness and education of our citizens towards the environment are the main achievements which have helped to promote the biodiversity of the area.

One of the building blocks of the Parc de Pedra is the park's consolidation as an area of tourism with regard to the project's sustainability. This will be achieved by improving the awareness and education of local citizens, and the provision of information concerning the values which have motivated this initiative.

Promotion





The “Parc de Pedra Tosca” has organised various initiatives with the objective of spreading information about the project and demonstrating its viability. Throughout the execution of the project all initiatives have been publicly presented through the media. This policy has facilitated reports in numerous national and international radio and television broadcasts and press reports.



These direct contact activities have been a great success. In quantitative terms, information about the project has been communicated to a large number of professionals in the sectors of agriculture, environment, tourism, cuisine and technology. Representation of the project also took place in the Bilbao International Trade Fair for the Environment, as well as in other events attended by professionals in the environmental sector.

We would like to point out the success achieved and the high degree of participation in the development of environmental education activities which have been carried out within the framework of the project using the resources and potential of the park.



3. Environmental Benefits

The combined series of actions carried out during the three years of the project have resulted in the achievement of important environmental benefits.

- 26 hectares in the Bosc de Tosca have been recovered for use and conservation.
- Environmental quality improvements through the re-implantation of locally used crops which were declining in use in 48 artigas, and other crops of special visual value.
- The promotion of ecological agriculture without the use of fertilisers or pesticides.
- The monitoring and non-contamination of water.
- The protection and recovery of the area’s architectural heritage: dry-stone walls and shelters with the benefit that the ecological characteristics of these traditional structures provides the area with a series of unique conditions which benefit a large number of species of flora and fauna.
- The promotion of greater biodiversity
- A long-term change in consumer habits
- A greater degree of implication in ecological awareness and education.

The economic viability of the project is determined by the generation of activities which generate the park itself. At a local level the awareness, public promotion and environmental education initiatives which have been developed in the framework of the project have helped increase the number of visitors to the area. These visitors come from many points of Spain and Catalonia, and to a lesser degree, from Europe and Asia (Japan). This contributes to an amplification of the resources of the economy at both a local and county level. In this sense the project reinforces the strategy of quality tourism which has been adopted by Catalonia and its government bodies.

The socio-environmental aspect which is dealt with in the Parc de Pedra Tosca project is similar to that of many periurban European areas where the border between the urban structure and natural resources is poorly defined, and where a marked danger of ecological degradation exists.

The solutions adopted to face the impact of urban pressure, the forces behind environmental and land degradation may be applied throughout Europe.



The methodologies applied in the project can be reproduced with relative ease in contexts with similar environmental conditions such as the management of underground water management, the use of traditional crops, the creation of paths and signs in the creation of a “pictorial scenic park”.

The project Parc de Pedra Tosca can be widely applied in the local boundaries as the project only encompasses 10% of the Bosc de Tosca, therefore a wider reaching project could be recreated in the area. The project would also be applicable to the rest of the eleven municipal areas which form the Natural Park of the Volcanic Area of the Garrotxa.

The potential for reproduction will be less with regard to the institutional context and to cooperation procedures which are specific to the context of the project. This is framed in the existence of a Natural Park which establishes environmental norms and regulations. We see the focus adopted with respect to the partnership as valid, with all the actors affected and the presence of a wide range of implicated organisations and institutions.

