

Le Cesine

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THE CONTEXT

Ecological Profile and Wetland Values

Le Cesine is a marsh located in Apulia, along the southern Adriatic coast (40°20'N - 18°23'E). The area covers 620 ha and is delimited by the Campolitano Canal, which surrounds the area in the northern, southern and western parts, and by the Adriatic Sea in the East.

The present site is the last surviving stretch of what was once a vast marshland extending from Brindisi to Otranto. This has been drained and reclaimed by repeated interventions carried out from the middle of the 19th century to the first decades of this century. At present, the area is a coastal depression occupied by a wetland complex and separated from the open sea by a sand dune system. The centre of the wetland area is made up of four main lakes: Li Salapi, Salapieddhi, Pantano Grande and Laghetto di Carlo. A canal (Canale Collettore Cesine) flows from the lakes to the sea and regulates water levels within the lakes themselves. The presence and level of water is largely due to rainfall; evaporation often causes dry strips of land.

The climate of the area can be defined as warm temperate. The thermo-pluviometrical data indicate a dry period that extends from June to September. In fact the "deficit" is quite high. This is due to the scarcity of rainfall as well as to the high rate of evapotranspiration. During the last decades, the average annual rainfall has been about 700mm, mainly in winter and autumn. The average winter temperatures range between 10° and 12°C, while the average summer temperatures range between 18° and 20°C.

The wetland water is supplied by rainfall. The creation of coastal dunes has hindered water from going back to the sea, so producing a geohydrographic site among the dunes themselves. Salinity in the wetland is determined by the tidal influence and rainfall.

According to the Ramsar Categories Classification, the area can be defined "intertidal marshes" and "brackish to saline lagoons". Habitats include open brackish pools, reedbeds, and associated salt marshes where *Salsola kali*, *Cakile maritima*, *Inula crithmoides* and *Limonium vulgare* are present, while reedbeds of *Phragmites australis* occur in less saline or freshwater parts of the site.

Significant values of Le Cesine are its high biological diversity and its use for environmental education, recreation and ecological tourism, and scientific research. The area is a representative example of Mediterranean wetland: it presents a great variety of landscapes, is located along one of the main migration routes and is home to many rare and endangered birds.

The wetland is frequented by great numbers of staging and wintering water birds, notably *Ardeidae*, *Anatide* and *Scolopacidae*. Moreover, species of high zoological interest nest in

this area, such as *Tachybaptus ruficollis* and *Anas platyrhynchos*. Several rare plant species occur, among these are *Orchis palustris*, *Ophrys arachnites* and *Ipomea sagitata*. The wetland is bordered by Mediterranean scrub and woodland.

Le Cesine remained almost untouched until the middle of the last century, when the first hydraulic interventions were carried out. Later the central part of the wetland was drained and a network of canals was built. The management of the area as a whole has been modified to a large extent in the past decades, depending on the objectives at the time: drainage for agriculture, reforestation for protecting cultivated land from storms, then specific actions for hunting grounds and for protection.

Today, the area is a mixture of different land uses: woods, agriculture land and wetland. However, the wetland was created for a good drainage of the surrounding cultivated lands, and it still respects this purpose through the hydraulic management of the canals. Water from rainfall flows both into a network of minor canals, which starts from the cultivated fields and leads to the wetland, and into two main canals, Cocuzza and Campolitrano, which communicate with the sea, in the North and in the South respectively. Only the remaining water lies in some pools, but if its level is too high, it is lowered through a pumping system placed in the reserve.

During the last years, the pools are subject to progressive siltation and summer deoxygenation, owing to reduced water exchange (lower inflow and closure of some of the pools' connections with the sea). It has been proposed that hydrological studies be undertaken in order to address this problem.

Another problem is the presence of infrastructures within the protected area; 16 km of roads pass through the reserve, they include a major road (ss S.Cataldo-Otranto) and four secondary ways which lead to the sea. They are used by visitors from nearby towns who go to the sea for bathing or fishing. The car traffic and the presence of people disturb waterfowl and lead to trampling of vegetation.

The reserve is surrounded by large olive-yards and by areas where spontaneous vegetation has grown up. Unfortunately these are reclaimed for agriculture. In urbanistic sense, the whole area is populated quite equally; there is one main village, Vernole, some minor villages, and some planned and unplanned small settlements, mainly used as holiday residences. However the surrounding villages, S.Cataldo, S.Foca, Acaja, are far enough so that they do not disturb the protected area.

Socio-economic Profile

The area where Le Cesine is placed is inhabited by approximately 7,783 people. The overall demographic situation is relatively stable, which means that during a few last decades there were no great demographic changes either in size or structure of the population. In 1981 there were 7,693 inhabitants, in 1991, 7,792 people were recorded, in 1995 some local census registered 7,801 people. The results of the last census (1991) show that people are distributed in villages as follows: 3,270 people live in Vernole, 1,030 in Acquarica, 1,004 in Pisignano, and only 479 in Acaja.

There are not intensive migratory movements of the population. During the last period emigration is essentially confined to the youngest sections of the population. The result is

that the population is composed of ever fewer young people and ever more elderly people. However the last census (1981, 1991) show that the proportion of non-working people (57%) to working people (43%) is constant.

On the other hand an increase in the level of education has been recorded. There are still some old people who cannot write nor read (5%), or who can barely write and read (15%), but most of people have a primary and secondary school education, while about 2% of the population has a university degree.

The region can be primarily defined as a rural area in which agriculture represents mostly a source of an additional income. People traditionally cultivate vineyards, tobacco and oliveyards. Some farmers practise a mixed agriculture, while the majority prefer extensive agriculture. Farms are very rare. Today, due to many economic and social changes, the role of agriculture is decreasing. In 1961 69% of active people were employed in agriculture, in 1971 51%, in 1981 40%, in 1991 the percentage decreased to only 33%. The main problems are connected with average small size of land and with the lack of development measures for agriculture in general. However, it is still an important economic source and a traditional way of living and remaining in contact with nature.

Nowadays, the structure of the economic sectors shows that in the area employment in the manufacturing sector area is stable, while services have increased (both private and public sector). Trading, transportation, financial activities and other services for the private sector, and public social, sanitary and military services have registered the major increase during the last decades.

In particular tourism has been developing over the last few years. This is concentrated in specific sites along the coast outside the wetland area, where two important tourist complexes have been constructed during the last decade. This kind of tourism is limited to the period June-September when it attracts Italian and foreign visitors. However, given its growth, it appears to be an attractive occupation.

As far as public services and infrastructures are concerned, primary schools are present in each village, while secondary schools are in the major ones. There are also some areas for leisure time and for parking.

History and ownership

The main owner of the Nature Reserve Le Cesine is the State (Ente Regionale per lo Sviluppo Agricolo Pugliese). The rest is split between small and large private landowners. In particular it is possible to identify three main areas:

Private woods. The northern part is located near the WWF Oasis and is well protected. The southern part is quite disturbed, especially as far as the fauna is concerned, due to human presence, especially in summertime.

Private lands and state lands regularly cultivated by private people. This area also includes some buildings.

Lands in state ownership, but managed by WWF-Italy. These include the wetland area and some woods. This area is well protected as access of people is controlled and regulated.

As far as the environmental management is concerned, different institutions and public bodies are involved. The State operates on the central level since it organizes work projects on a National scale and is responsible for the shoreline. It intervenes directly through the Ministry of Environment.

According to a 1977 law the Regions are responsible for the regional projects, the planned interventions and coordination. The most important regional plans are the regional plans for the environment which consists of specific plans for decontaminating the water and the atmosphere, for the disposal of urban solid waste and the disposal of special waste.

The Provinces are empowered to manage and generally check the quality of the environment concerning the atmosphere, the water, the land. They act as intermediaries between the Regions and the local authorities, and together with the Regions work on the territorial plans.

The local authorities have the task of controlling environmental services and of planning and managing urban centres (Urban Plan - PUT).

Today authorities have a quite high level of awareness of the multiple values of wetlands and a number of measures have been taken for protection of their delicate habitat. Since Italy became a Contracting Party to the Ramsar Convention in 1977, 36 wetlands have been put under protection, in line with the regulations of the Ramsar Convention, while national and regional protection laws were established for the different sites.

Le Cesine is under the responsibility of the municipality of Vernole, the Province of Lecce, the Region Apulia and the Ministry of Environment.

It was designated for the Ramsar List, since its very beginning (1977). Then in 1980 the main protection regulation for the area was established: it became Nature Reserve (Riserva Naturale di Ripopolamento Faunistico). The area was also declared a Wildlife Sanctuary (Oasi di Protezione Regionale 1978), and was protected by law n°431 of 8 August 1985 and under law 157 (Article 21) of 11 February 1992 (hunting law).

In 1980 WWF-Italy was assigned management responsibility for 350 ha of the protected area by agreement with the regional authorities. The main objectives of the WWF management system are:

- to grant the restoration and protection of the wetland area
- to promote environmental education and scientific research
- to promote the "wise use" concept

On the other hand the Corpo Forestale dello Stato (provincial forestry corps), helped by regional workers, coordinates the activities for preventing fires in the area. The water management is under the responsibility of the "Drainage Association Ugenti and Li foggi" ("Consorzio di Bonifica Ugenti e Li Foggi"), under the control of a province agency. It manages the canals of Le Cesine and the pumping system.

The local community regularly works in the area of Le Cesine. Human activities have remained largely unchanged. They include the typical activities of a Mediterranean wetland: traditional agriculture (olive-yards and vegetables) and fishing during leisure time. In the past hunting was practised too. This largely took place when hunters managed the wetland. Some

hunting was practised in the fields, while waterfowl hunting took place in the wetland catchment.

INVOLVEMENT OF STAKEHOLDERS

As in many other wetland areas in the Mediterranean basin, many different interests and concerns can be identified also in the catchment of Le Cesine. These depend on both the actors involved in the wetland management and on the community that uses these natural resources and has a historical relationship with the area.

In general there are three main kinds of interests for this area: the ecological concern, the economic and the social ones. The ecological interest is represented by WWF Italy, that manages part of this wetland of international importance, and by some researchers who have a specific interest in studying it. The representatives of the economic concern in Le Cesine area are the local farmers, who practise their own activity as owners or tenants of the lands within and immediately adjoining the wetland, but also some tour operators who hope for the further development of tourism in this area. It is important to remind that the near seaside is one of the most appreciated touristic resorts in the region. The local administrators are particularly interested in Le Cesine for its socio-economic potential. The present administration is favouring the protection of the wetland, but at the same time it is preparing some development plans along the borders of the reserve.

Different development proposals for Le Cesine have been proposed. They reflect the already mentioned interests. The first was presented by the Region of Apulia. This project included some touristic resorts within the protected area. It was abandoned due to the opposition of other stakeholders, namely WWF Italy which prepared a new management plan. This suggested stricter protection measures to favour the conservation of the existing wetland values and equilibrium, the restoration of the parts of the area which were degraded, and some appropriate structures to improve education, cultural and naturalistic activities.

At present the Municipality of Vernole is preparing a new plan. This plan reflects the awareness of the local authorities about the conservation needs for Le Cesine, but it also foresees different levels of protection according to specific laws and tools, such as general and territorial town-planning schemes. For this reason the project also suggests the creation of a car parking and some other infrastructures in the area adjoining the reserve in order to favour a future economic development with traditional activities.

In the end some potential conflict can be identified between different developments proposed by different actors in the area, in particular between the development outcomes and the necessity to maintain the natural habitat and resources of the wetland.

Involvement of the local community

Before the protection regulation was implemented people used to practice agriculture and to hunt within the future reserve and the surrounding lands. The cultivated area belonged to small and large local landowners, while a private association of hunters managed the wetland. One fulltime officer was employed for the activities of maintenance and surveillance, he granted the entrance to the associated hunters. The activities within the area included reed cutting, maintainance of pools, and every kind of action aimed at maintaining the wetland status to favour the abundant presence of waterfowl.

In 1980, the Nature Reserve was established and WWF Italy, an environmental organization, was entrusted with the management of the wetland area, once under the control of local hunters. Negotiations were made at a *national and regional* level where good will and the involvement of professional people were very helpful and positive.

But, in general, the Nature Reserve status was superimposed upon the local people without the necessary social preparations and discussions with them. As a result, efforts for conservation were faced by local people with hostility and suspicion. Unawareness brought along disturbance and sometimes destruction especially within the area which was managed by WWF Italy.

On the other hand some stakeholders, in particular local hunters, directly opposed the protection of the area and, consequently, the involvement of the local community. Local authorities too had a negative attitude towards the environmental management of the area. They would have preferred a traditional economic development.

After some time, WWF considered that good quality information to local people and pupils on the main features and values of Le Cesine, as well as on the relationship of Man and Nature, was an essential phase for the protection of the wetland.

In order to change negative opinion of the local communities it was necessary to prove them in practice that a protected area does not mean exclusively strict prohibitions, but that it can be used and can result in economic advantages. For example it was useful to show that agricultural activities could be regularly practised in the area, while the first interventions for the creation of ecotouristic paths within the wetland could demonstrate that there were new potential economic advantages.

In the beginning only one person was officially employed in the area. But the intention was to involve as many people as possible. The protected area had to appear as an institution which offers opportunities, stimulates activities and promotes initiatives. Under such criteria the officer of Le Cesine began to be helped by some local volunteers in the surveillance task.

As some people began to visit the area, some specific nature paths were created and promotion material was produced. Research activities were promoted and specific rules for the access and enjoyment of the wetland were established. Visits were allowed from September to April (with some exceptions for groups of people coming from other regions) for groups of less than sixty people. Both individuals and groups of people had to respect the timetables and could visit the area only if they had a permission or if they were assisted by guides.

During the first period, some volunteers and three guides, who received some refund for their work, accepted to assist the tourists who visited the area. When this activity became quite regular they created a cooperative. Today, this includes fourteen local young people, aged about 26-27, who know the area very well and organize guided tours within the reserve by following appropriate paths and infrastructures. They work as part-time touristic guides.

In 1990, new elections also brought a new political group to the power. This is still in charge and is aware of environmental issues. This group fundamentally agrees with the idea of sustainable development, and in particular with the concept of "wise use" of wetlands. It

openly asked to involve local people in the management of the wetland and in other specific activities (i.e. the cooperative of young people working as touristic guides).

RESULTS

Seventeen years have passed since the Nature Reserve of Le Cesine was established. The systematic efforts to inform local people about the unique features and the importance of their land, as well as the benefits they might obtain from a wise use of it and by properly exploiting its protected area status are giving their results.

At present there is a manager responsible for the wetland area and 14 local workers. They know that their own work can grow according to their will and initiatives, they feel responsible for the good operation of the reserve and they can participate or start new activities related with environmental issues under the supervision of WWF Italy.

The wetland ecosystem and its functions are being maintained, while biodiversity is protected thanks to the the good collaboration with the local institutions and people. Some new environmental projects are being implemented: the EU is funding a Life project which is aimed at deviating the main road which passes through the protected area; the Province is financing a project for the introduction of some ducks; the Region, through local authorities, is supporting the restoration of the dune system.

On the other hand, visitors have the opportunity of spending half a day visiting the protected area, and they can get information about the wetland at the Information Centre that has been built over the ruins of an old abandoned building. Promotion has been made both at national and local levels. Information about the area are included in booklets on ecotouristic issues which are delivered all over Italy. Specific leaflets and posters about the area are available too. Appropriate structures help to appreciate the wetland and its rich ecosystem.

Regular reports about the visits in the area show an increase in the number of visitors during the last years. Some data are indicative: in 1987, 3,480 people visited the area, in 1990 the number passed to 6,120, in 1993, 9,712 visitors were registered. But the major increase has been recorded in the last three years: in 1994, 15,696 people visited Le Cesine, in 1995, 17,292 people, and in 1996 the number 21,938 was achieved. As for the last year data, visitors included schools, organized groups and individuals. As far as their origin is concerned, almost all the schools were from the provinces of Apulia, while the groups and single visitors came from all over Italy.

This means that the wetland is used sustainably and is producing some economic advantage for the local community in a direct and indirect way. This is why public support has increased, an ecotouristic hotel has been built in the area and new initiatives are being proposed.

The management structure of Le Cesine could be easily replicated. In Italy WWF together with local people already cares for about 80 Oases throughout Italy in order to conserve their natural habitat and foster the rare or threatened species that live in them, and, at the same time, tourists and wildlife enthusiasts are allowed to visit the areas.

However the economic benefits in the short term are not so great if compared to other uses of the wetland (i.e. economic advantages produced by some touristic activities practised along

the coasts). That is why during the process of negotiation there could be some potential conflict between the interests of individuals who look for short term benefits through the exploitation of natural resources and the interests of the community which also tries to look for advantages in the long run.

RECOMMENDATIONS

The involvement of local populations should be considered as a main priority in any case of wetland protection and generally in creating every kind of protected areas.

The involvement normally does not foresee the direct management of the protected areas and the natural resources included: in most cases the residents are too conditioned by the local economic requirements and peculiar interests to follow the guidelines fixed by management plans or by the general statements of management.

But it is very important to involve local communities by entrusting specific activities to groups, associations or cooperatives being able to develop actions included in definite and predefined agreements.

In any case where local operators' associations operating inside the protected area are present, their representatives should be absolutely involved in the management planning as members of a Steering Committee of the area. In such a way they can be involved in the direct management of specific activities at the same time participating in the supervision and evaluation of the activities themselves.