Conference Volume | **3rd Symposion of the Hohe Tauern National Park for Research in Protected Areas** | pages 27-31
September 15th to 17th, 2005, Castle of Kaprun

Research activities in the Mont Avic Natural Park: Interreg IIIA "COGEVA-VAHSA": project experience

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Abstract

"Cogeva-Vahsa" Interreg IIIA, a project which involves Italian and French protected areas management subjects (Mont Avic Natural Park; Regione Autonoma Valle d'Aosta; ASTERS), is focused on different scientific research activities and on the communication of their results to general public.

The recent Mont Avic Natural Park widening gives the needing of a revision of its management plan articulated on three actions. The first action outlines the development of research activities to get a capillary knowledge of both environmental and anthropogenic issues of the park, allowing a homogeneous distribution of information between the old and the new park areas.

In 2003, from the Environmental Management System (Regulation EC 761/2001, ISO 14001 standard) raised the individuation of the most important environmental themes in terms of nature conservation. Because of the needing to preserve such themes, the second action involves the implementation of monitoring activities mainly linked to biodiversity conservation and water management strategies.

The third action concerns public communication of the results coming from these activities in different ways, depending on target categories.

Keywords

scientific communication, ecological survey, management plan

Project's aim and duration

In 2004 the Mont Avic Natural Park – with the cooperation of the Aosta Valley Autonomous Region (Italy) and the association ASTERS (France) - started a three-year project within the framework of the Interreg IIIA Alcotra programme, aimed at the integration, management and enhancement of the protected areas in the High Savoy and Aosta Valley territories. The project actions involve the drafting of management plans, the launch of multiannual monitoring activities aimed at the protection of biodiversity, and the creation of tools for the spreading of the results achieved. The project core scientific activities are accompanied by several communication initiatives targeted at the general public, schools and all those who are interested in environmental sciences.

Area of study

The project activities cover nine natural reserves located in the High Savoy area, the Natura 2000 sites on the Italian side of Mont Blanc and the Mont Avic Natural Park. In this document, we will describe the actions concerning the Mont Avic protected area, which covers 5747 hectars in the Champdepraz and Champorcher valleys (Aosta Valley, Northwestern Italy). The altitude of the area ranges from 1000 m a.s.l in Boden to 3185 m a.s.l on Mont Glacier. The most representative substrates are ophiolites and lime schists, which produce extremely varied and unusual environmental situations at Alpine level. The morphology of the orography, characterised by valleys stretching from East to West, is the result of the combined erosive and cumulative action of water streams and glaciers. The forest surface, dominated by the Mountain Pine, covers over 2000 hectars in the Champdepraz area, while it is virtually non-existent in the Champorcher high valley. The area includes over 40 standing water bodies and several peat-bogs.

Contribution received at: 22.07.2005

The project structure

The following actions are currently under way (some of them will be later described in further detail):

- Review and update of the Territorial Management Plan prescribed by existing regulations.
- Multiannual environmental monitoring, accompanied by the launch of studies on air and water quality, fauna and lichen flora, carried out in sample areas.
- Creation of suitable communication tools to:
  - disseminate the results of in-situ research,
  - describe the specific features of Mont Avic,
- compare the actions implemented by the three project partners (Website, publications, illustrated panels).
- Launch of a twinning protocol and constant exchange of information among the protected areas in the Aosta Valley and High Savoy territories.

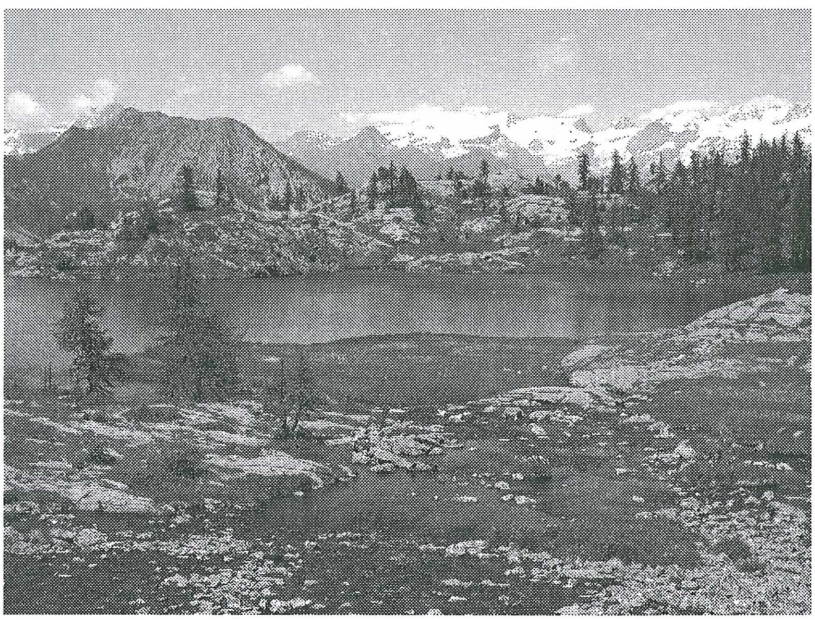

Fig. 1

The Territorial Management Plan

In 1994, the first Territorial Management Plan for the Mont Avic Natural Park was approved. After the park territorial expansion in 2003 – the protected area almost doubled in size – and given the significant changes in the regional, national and international legal framework since that first text, a thorough review of the document has been deemed necessary. An accurate data gathering has therefore been started, aimed at:

- Ensuring in-depth knowledge of both the park valleys.
- Identifying the environmental critical aspects and emergencies which need safeguarding and enhancing.
- Allowing the drafting of management rules that can be easily understood by the public and by local residents.

In order to review the Territorial Management Plan, in compliance with the national guidelines issued by the Italian Ministry for the Environment, the following studies will be carried out:

- Synopsis of the existing climatological and geological knowledge.
- Pedological characterisation and cartography of soilscapes. Although often overlooked, the study of soils gives precious indications for the interpretation and the safeguard of mountain environments. The research will include the execution of several profiles, the chemical and physical analysis of humuses and the creation of related cartographic representations.

- Completion of the inventory of water bodies and gathering of chemical-physical and flow rate data.
- Study of the ichthyofauna and benthonic macrofauna in some water streams. The Mont Avic Natural Park includes several types of water bodies concerned by the monitoring activities. The fish populations of the two main streams (Chalamy and Ayasse) are investigated using electrofishing equipment to obtain biodiversity, structural and functional information. At the same time, the river macrobenthos is sampled using semi-quantitative protocols to obtain useful taxonomic data for the evaluation of current and potential impacts caused by water catchments and discharges.
- Study of rock and soil lichen flora, brioflora and vascular flora in the area included in the park after its recent expansion.
- Study of entomological fauna and molluscs. Some groups of particularly interesting insects have been selected for the characterisation of open and semi-open environments, such as lepidoptera, orthoptera, coprophagic coleoptera and carabidae. So far, molluscs have been virtually ignored by researchers working in the area.
- Systematic gathering of observations on vertebrated animals in the Champorcher valley, and update of the database managed by the park staff since 1991, which currently contains more than 25.000 records.
- Inventory of the mountain pastures in the protected areas and nearby territories.
- Gathering of data on socio-economic issues, with the creation of sector archives and cartographic documents.

All georeferenced data will be gradually integrated in the Geographical Information System (ESRI Arc View 8.1) of the Park in order to optimise its management and update, and to facilitate its use through query functions.

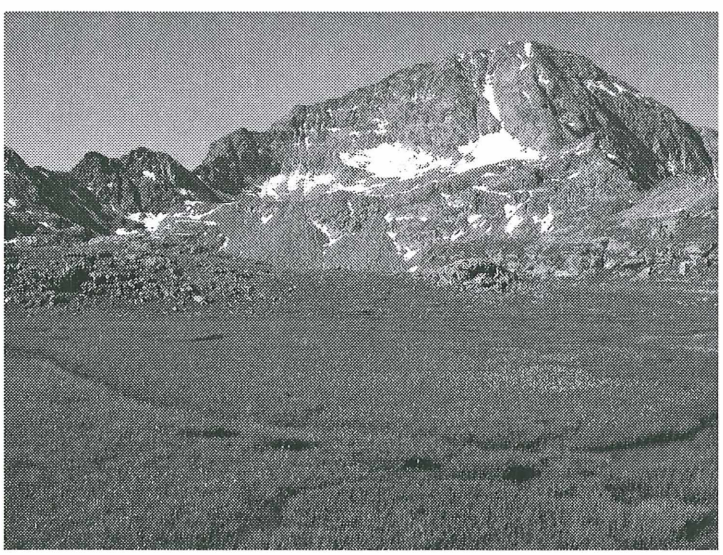

Fig. 2

The environmental monitoring

Several monitoring campaigns have been launched. In the longer term, these will continue to be carried out on a regular basis with the aim of following the development of the habitats mentioned by the European directive 92/43 and of species of high conservation interest. In addition to the investigations on the impact of ozone and atmospheric depositions on vegetation, described in a separate document, the action includes the following reasearch areas:

- Water quality. The impact of the discharges of two tourist huts on streams is evaluated through a seasonal check based on chemical, physical and microbiological parameters (temperature, pH, nitrites, nitrates, total phosphorus, COD, surface-active agents, hydrocarbons, fatty oils, E.coli and Enterococcus). Peat-bogs are very common in the park and some of them are affected by the presence of livestock, which might influence the hydrochemical balances. Seasonal water samples are collected to evaluate the impact of such presence on the chemical forms of main nutrients (N and P).

- Biomonitoring of lichens. A screening of lichen biodiversity (LB) in the forest area of Champdepraz is currently being carried out. This is integrated by surveys carried out according to the ICP/Conecofor guidelines and by the analysis of lichen individuals in permanent squares.

- Ornithological investigations. Birds, safeguarded by the European directive 79/409, are considered as good indicators of environmental changes. The action aims at setting up a system for the monitoring of interesting species from a management point of view. For such species, the park staff should be able to gather qualitative and quantitative data. In the Mont Avic area, the following species have already been identified for such monitoring activity:

  diurnal birds of prey (Honey Buzzard, Goshawk, Sparrowawk, Common Buzzard, Golden Eagle, Short-toed Eagle, Peregrine, Kestrel)
  Corvidae (Alpine Chough, Chough, Raven)
  Galliformes (Rock Ptarmigan, Black Grouse, Rock Partridge)
  woodpeckers (Green Woodpecker, Black Woodpecker, Great Spotted Woodpecker).

- Entomological investigations. In the past few decades, the open environments in the hill, mountain and subalpine areas in the Champdepraz valley have been constantly contracting due to the reduction of traditional rural activities. In order to evaluate the consequences of such transformation in terms of biodiversity loss, studies are being carried out on groups of insects with different diffusion patterns. Some live predominantly in the grassland areas, others in ecotones or in forested areas (orthoptera, lepidoptera, carabid coleoptera, coprophagae, borers). The surveys are carried out in sample areas and along transects, both with traps and by direct observation. As of 2006, an investigation protocol will be defined and implemented on a multiannual basis.

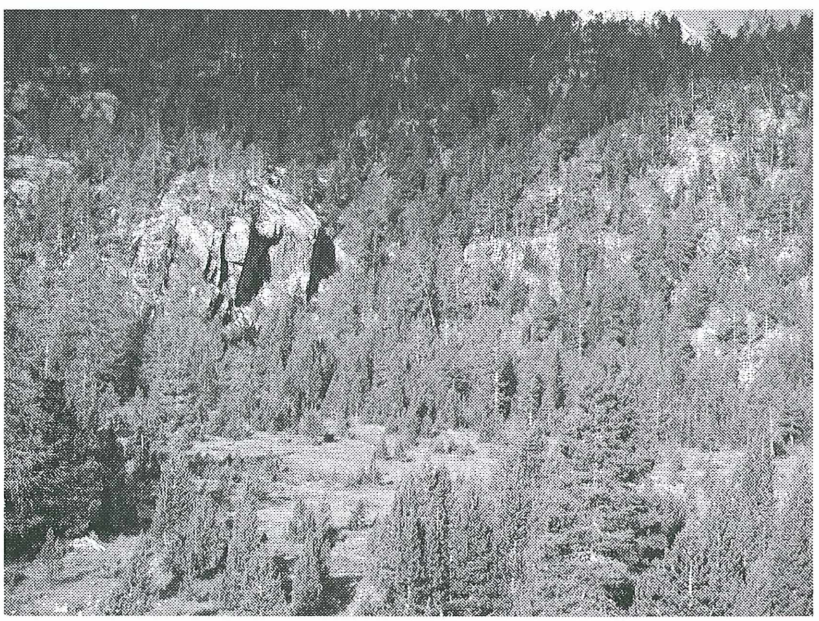

Fig. 3

- Disturbance of sensitive mammal and bird species during winter. Some vertebrated animals, such as ungulates, game birds and – to a lesser extent – lagomorphs, can be negatively influenced by a strong anthropic presence in their wintering grounds, during a very sensitive stage in their biological cycle. In winter 2004-2005 a systematic gathering of observations was launched, aimed at:

  quantifying the problem at local level
  identifying the most popular routes followed by skiers and trekkers
  creating a cartography of the sites that need safeguarding.

  The species taken into account are the following: Ibex, Chamois, Mountain Hare, Rock Ptarmigan, Black Grouse and Rock Partridge.

The communication tools

The results of scientific research carried out in parks and natural reserves are often little known by the users of such areas. This lack of communication often leads to a reduced cultural and educational interest in the data acquired and a very limited understanding of the management strategies for environmental protection. An effective dissemination of scientific knowledge can result in a wider acceptance of potential limitations on economic and recreational activities.

Four different communication tools have been envisaged:

- Website. By autumn 2005, the structure of the Website www.montavic.it will be reviewed and implemented. Different types of layout and language will be used in order to effectively present the research to the various users of the Website.

- Scientific monographies. New publications containing a synopsis of the various research areas results will be published, in order to organically present data now scattered in several specialised publications, often difficult to access. When possible, a non technical language will be used, while still providing rigorous and complete information. The topics selected for the Mont Avic park are as follows:

  forests – the park contains a wide variety of forest types, and they are particularly interesting in terms of environmental management;
  the Black Grouse - a species which has been continuously studied in-situ for over 20 years;
  the Black Woodpecker – in-depth investigations on this species have been carried out with the help of radiotracking.

- Information leaflets. Illustrated flyers for the general public will present the results obtained by the project partners on three common research areas: the ecology of the Black Grouse, the winter fauna and lepidoptera.

- Information panels. These will be located in alpine huts and at a winter sports resort in the vicinity of the park, with the aim of raising awareness on the safeguard of the Alpine environment among visitors.

Conclusions

In conducting research activities, managing bodies of protected natural areas shall:

- meet the knowledge needs related to management issues;
- transfer the results obtained to the public through suitable communicaton tools.

The COGEVA – VAHSA project aims at enabling the optimal achievement of the above objectives by exploiting the sinergic international cooperation and know-how exchange among the participating subjects.

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