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STEERING COMMITTEE FOR THE CONSERVATION AND MANAGEMENT  
OF THE ENVIRONMENT AND NATURAL HABITATS (CDPE)

**Group of specialists - Protected Areas**

**Mercantour National Park**

**Application for the European Diploma**

presented by  
the French Government

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## FOREWORD

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## NATURE WITHOUT BOUNDARIES

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Before presenting the Mercantour National Park's application for the European Diploma, it is important to note that the Mercantour National Park and the Argentera Regional Natural Park in Italy are working in collaboration for this, while submitting two separate projects.

In fact these Parks have neither the same status nor management, but both have similar environmental protection policies. They were twinned on 10th July 1987 and have a common border 33 kms long. They have a great deal in common from the past and have been working together since the twinning date.

In fact, the site of these two protected areas is the former Game Reserve of the King of Italy, Victor Emmanuel II. This private reserve covered both sides of the Alps before the 1861 Turin Treaty which annexed the area to the County of Nice in France. Despite being part of French territory, under the pretext of preserving the King's traditional hunting grounds, the reserve was kept as it was, creating an artificial border, leaving almost 30,000 hectares of the Mercantour under Italian rule. After the World War II the Game Reserves on both sides of the border became the starting point of the two Parks.

In 1947 the Boreon Game Reserve was set up with an area of 3,500ha. This reserve was enlarged between 1950 and 1964 before being taken over as the basis of the Mercantour National Park on the 18th August 1979. Its central zone covered at that time 68,500ha. In 1949 the Italians created in turn the Valdieri Reserve on the ex-territories of the Italian Royal family, with an area of 30,000ha. On the 30th May 1980, the Argentera Natural Regional Park was established with a territory of 25,833ha.

It can be seen that the transborder nature of these two Parks dates far back but the legal aspect and the preservation policies of these two territories has changed. Heritage is no longer preserved for private use, even that of a King, but is now protected for two nations: French and Italian and for all European citizens to enjoy.

Long before the Game Reserves were established, peoples from both the Argentera and the Mercantour had close links in their habits, customs, language and traditions. The Alpine Range did not act as a barrier to them, on the contrary, movement across the mountain passes enabled cultural

interaction as early as the Bronze Age. The peoples of this Age left extraordinary traces of their civilisation which can still be seen today. These are the petroglyphs in the Mont Bego and Vallée des Merveilles areas. These Bronze Age shepherds were also found on the Italian side of the Alps as shown by the recent discoveries in the Vei del Bouc valley. Later with the salt trade, economic ties developed and cultural and religious similarities are still seen today in the architecture and church frescoes. These were often painted by the same artists on either side of the Alps.

History is not the only link between the Argentera and the Mercantour. In fact from a geographical point of view, they are two halves of the same Alpine Range and they complement each other perfectly: the Argentera on the north side and the Mercantour on the south side.

Variations in climate are due to exposure to sun or shade and high altitudes (almost 3300m above sea level). These conditions at only 50km from the Mediterranean coast mean that the vegetation is extremely varied and ranges from Mediterranean scrub to Alpine tundra in this area. For the same reasons the Alpes Maritimes are prized by botanists as the largest endemic centre of the whole Alpine range. This applies to the number of endemic species such as the *Saxifraga florulenta*, *Primula allioni* and the presence of very rare species.

The animal populations use the whole of this area. Large numbers of ibex spend the summer in the Mercantour after their winter stay in the Argentera. Some of the wild sheep do the reverse. Chamois are abundant on both sides of the Alps.

Although the twinning of the two Parks is a recent event, they have already worked together successfully, especially on the ibex reintroduction programme in 1987 and 1989, which won the EEC European Environment award. Other common projects are imminent, such as the reintroduction of the bearded vulture (*gypaetus barbatus*), directed by the World Wildlife Fund.

Following these fascinating reintroduction schemes comes shared scientific observation and information allowing both Parks to continue their success. This collaboration also applies to other species.

The two parks work together in the field of communication. They have co-edited bi-lingual literature: leaflets on the ibex and bearded vulture projects, an Argentera-Mercantour poster, a hiking guide and recently a leaflet on cross border bridle paths. The close cooperation between the two Parks, rooted in the past and active in the present was important in their decision to combine their individual applications for the European Diploma.

APPLICATION FOR THE EUROPEAN DIPLOMA  
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Subject: Mercantour National Park

Name and Address: Etablissement public du Parc National du  
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BP 316 Nice 06006 Cedex

Country: France

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1. TYPE OF NATURAL AREA, SITE OR FEATURE  
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The Mercantour National Park was established in 1979 on a natural environment whose importance had been recognised for many years. The Park has an original geographic position in that it is a high altitude National Park within close proximity to the Mediterranean Sea, which gives a diversity of landscapes: rocky terrain, valleys, glacial cirques, deep blue and green lakes, extensive high altitude pasturelands, thick forests, narrow valleys, striking gorges and clear mountain streams.

The central zone (68,500ha) where National Park regulations are enforced comprises seven valleys, the Roya, the Tinée, the Vésubie, the upper Var in the Alpes Maritimes department, the Verdon and the Ubaye in the Alpes de Haute Provence department. There are no permanent inhabitants but a few hamlets are occupied in the summer. There are 38 rangers protecting these areas. The highest point is the cime du Gelas, 3143m.

The wildlife is abundant and varied. There are six ungulates living in the Park: chamois, ibex, wild sheep, red deer, roe deer and wild boar.

Smaller mammals add to the variety of the environment: the marmot with its piercing whistle and the mountain hare are relics of the last glacial era, there are ermine with their changing fur, and many others.

There are many different species of birds: black grouse, ptarmigan, red-legged partridge and of course, the birds of prey: short-toed eagle, golden eagle, etc.

The abundance of flora is unique in Europe. Every vegetation stage is represented here, from Mediterranean to Alpine meadows of over 2500m. The peripheral zone is exempt from Park regulations and covers 136,500ha. It includes 28

villages with a strong cultural heritage. The geographical position and the nationalities visiting each year make this a truly European Park. More and more Italians come here and other tourists going to and from the Mediterranean coast.

## 2. CHARACTERISTICS AND SCIENTIFIC, AESTHETIC, CULTURAL OR RECREATIVE VALUE JUSTIFYING CONSERVATION

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### CHARACTERISTICS

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The Mercantour National Park comprises three different regions:

In the south-east a series of mid-altitude sedimentary landscapes stretches from Authion to Sospel, separating the Roya and Bevera valleys. At the southern most point, the Pian Gorges, the Park reaches its lowest altitude, 490m above sea level.

In the north-east the Mercantour massif, which gave its name to the Park, forms a powerful range of gneiss and granite, eroded by glacial action. Its highest point is the Cime du Gelas (3143m). This range is bordered on the east by sedimentary sandstone and shists such as the Vallée des Merveilles and the Fontanalbe cirque. In fact it is on this glacially polished schist that the Bronze Age petroglyphs are found.

In the western and northern area between the Tinée and Verdon valleys is a high barrier of sharply eroded sedimentary rock stretching from the Mont Mounier (2817m) to the Mont Pelat (3051m). It is a lot less forested and is an area of extensive alpine pastures. In the north west between Gialorgues valley and Allos lake, Annot sandstone forms the mountain summits, giving rise to an unusual relief type. A variety of different habitats are contained in the limited area covered by these three regions. The Central Zone of the Mercantour National Park forms a long strip 80km x 2km, the narrowest point being the Valabre Gorge.

The central zone comprises the upper basins of the main Alpes Maritimes valleys, the Roya, the Vésubie, the Tinée and the Var; several tributaries of the Ubaye in the north, the Bachelard, the Abries, the Ubayette and the Verdon in the west, i.e. 680sq km of which 70% is over 2000m above sea-level. The valleys show how recent tectonic forces form such rugged relief. The main valleys generally have a north-south orientation and the majority are V shaped becoming narrow gorges: Pian in the east, Valabre in the centre, Bachelard in the north. Exceptions to this V type can be found in the Tinée, Var, Verdon and Ubaye, where layers of thick marl have facilitated widening.

Note some other interesting relief elements. Because of the relief divisions, the mountains have different sun/shade exposure, giving local variations in climate. Thus, morpho-climatic units appear which are highly contrasted and varied.

The valleys open out to the south allowing hot air flowing up from the sea to penetrate and influence climatic conditions at higher altitudes. Steep mountain slopes also lead to climatic instability.

Finally, we can point out that various rock formations remained after the last glacial period. Some of the more original ones are glacial moraines, found in all the high valleys. The most interesting of these the north slope of Mont Pelat is possibly still active.

The differences in relief and climate in the Mercantour National Park have positive effects on the flora. There are over 2000 plant species in the Park, of which 200 are rare and 30 endemic. The Park is a meeting point of geography, climate and flora and this unique position means a wealth and quality of habitats. A mountain massif adjacent to the Mediterranean, the Mercantour borders various regions such as Provence, Brianconnais, Piemont and Liguria in Italy which each have different flora originating in the Mediterranean, the Alps and Central Europe, all thriving in this favourable environment.

The sunshine and warmth of the Mediterranean climate influence the flora even at high altitudes, for example, lavender grows at 1500m.

- A warm moist wind blows from the Gulf of Genoa and this combination of heat and humidity means that flora from as far away as the eastern Alps or even the Balkans thrives here.
- The reverse effect is also true. Species that came from northern climates during glacial periods thrive at high altitudes in these mountains, eg the Gelas (3143m).

The flora specific to the National Park has a long evolution, dating back to the Mioscene-Pliocene epoch 10 million years ago. At this time there was a warm subtropical climate and orophytes formed on this area, then a lot lower than at present. The flora was destroyed by four successive glacial periods of the quaternary era, with the exception of certain orophytes situated on high rocky cliffs. The Argentera-Mercantour mountains were not totally glaciated, hence their role as refuge, allowing certain ancient plants to escape evolution. The famous saxifraga florulenta, emblem of the National Park is the best known example.

The quaternary glaciations brought a whole group of plants

found in Arctic zones which remained after the last glacial period 10,000 years ago. For example *Silene acaulis*, *Ranunculus glacialis*, *Dryas octopetala* and many others.

Finally, the diversity of the environments has affected the fauna in interesting ways. The great variety of insects was well known to the collectors who came to the area before it was protected as a National Park, in search of rare species of lepidoptera and carabidae. Such species as the metallic green *Carabus solieri*, or the *Parnassius gazelli*, a white butterfly with red spots have been identified here. Moreover, the Mercantour is the only protected area where the four large ungulate mountain mammals are found: chamois, ibex, wild sheep, and red deer in the wooded parts of the Park.

#### SCIENTIFIC VALUE

#### MERCANTOUR NATIONAL PARK RESEARCH POLICY

This policy was started in 1980 when the Park was founded.

- inventory of expertise;
- systematic cartography on a 1/25,000 scale of the soil and vegetation in the central zone and surrounding areas, based on permanent observation and recording by the field staff.

An orientation guide was published by the Scientific Committee with two basic aims:

- answering management problems of Park and peripheral zone;
- research programme bringing environmental issues into land development.

The document has two priorities:

- 1 Developing methods used by the Park management in decision making policies on its protected species and land.
- 2 Improving use of data concerning the natural environment in general development policy, especially in fragile areas outside the Park boundaries.

The research plans:

- to link Scientific Committee members with prestigious university laboratories and industrialists;
- to use work done on site by Park rangers, local groups and by researchers under contract;
- to learn from the expertise of other National Parks and their partners working in similar areas.

Computers play a major role in storing and processing information.

Instead of storing the results of this work in archives, the National Park has developed the data mainly through participation in conferences and articles appearing in existing scientific publications, or from time to time in National Park publications.

#### SCIENTIFIC WORK

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Scientific work has been taking place since 1980 in the following fields:

- expertise assessment;
- cartography of the environment and factors influencing it;
- installation of a Geographical Information System in a wilderness management area;
- inventory and permanent observation of species and environment;
- implementation of a reintroduction and population reinforcement policy;
- improvement studies for Park area management;
- improvement of wildlife and wilderness management within the land development policy.

#### I EXPERTISE ASSESSMENT

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This is made possible by bibliographical inventory.

The Mercantour National Park is situated on a prime wilderness area. There are several reasons for this: the particular situation in the Alpine Range, high numbers of endemic species, climatic and biotic crossroads, ancient human activity. Researchers of both natural and human sciences have always been attracted to this area.

Stress was placed on work and studies already carried out. This inventory began in 1980 and led to files being developed on natural and human sciences, animal and plant species, geology of each valley, sociological aspects of the villages, the wealth of endemic, rare or threatened species in the National Park catalogued in distribution zones.

#### II CARTOGRAPHY OF SOIL AND VEGETATION ENVIRONMENTS AND THE FACTORS INFLUENCING THEM

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Land management requires knowledge of how factors on which decisions are to be made are distributed spatially, so from 1980, the Mercantour National Park began a systematic area cartography programme on different scales:

- Vegetation series.  
Completion of the existing 1/100,000 maps of the area and publication of other sheets covering the National Park and its peripheral zone.



- Landscape features on a 1/25,000 scale.
- Plant population structure.
- Morphological groups on a 1/25,000 scale.
- Morphological landscapes, including geological substratum, erosion action and resulting forms.
- Natural features on a 1/25,000 scale using maps of slopes, exposure, major relief features, rock features, morphology, avalanche risks.
- Human impact on a 1/10,000 scale.
- Main usage areas: grazing, forestry, agriculture, tourism and development.
- Past usage on a 1/10,000 scale and detailed study of locality information from the 1860 cadastral survey.

### III INSTALLATION OF A GEOGRAPHICAL INFORMATION SYSTEM IN A WILDERNESS MANAGEMENT AREA

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Understanding management and information are among the main aims of a National Park.

Systematic inventories of flora and fauna as well as numerous observation techniques allow a precise survey of the state of the land under management. A large amount of spatial information results from this. The greater part of management is concerned with conservation, so development plans must involve measurement of its impact on the environment: this planning takes place on a daily level.

National Parks are in a privileged position to set up and control cartographical data. Conscious of this, the Mercantour National Park put into operation in 1980 a strategy installing and eventually controlling a Geographical Information System (GIS) on the environment.

The first stage involved field data collection and technical research in order to set up a geo-coded data bank. The second stage concerned the installation and use of the GIS to answer management needs and scale was an essential part of this. Finally, the third stage comprised research into installing a GIS compatible with subject and satellite data, a user-friendly system for people unfamiliar with computers.

As a result of this work, the GIS ARC INFO software was inaugurated in 1989. The computer program enables

information to be printed out on demand and to develop plans for existing or possible developments.

The GIS devised by the Mercantour has now been adopted by all the French National Parks at the request of the Environment Ministry.

#### IV INVENTORY AND PERMANENT OBSERVATION OF SPECIES AND HABITAT

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A major priority from the foundation of the Mercantour National Park was understanding the species using it (inventory phase) and developing and integrating this knowledge to understand how ecosystems work: species interaction, habitat, trophic levels etc. With this expertise the Park is better equipped to manage the environment and promote nature education. The collection of data was structured on three complementary levels:

- 1 Descriptive phase (species/habitat), inventories, spatial distribution, density.

This phase was set up with priority given to particularly "interesting" species such as indicative species, species at the head of the food chain, rare, threatened, migratory or special status species, species with national or regional value.

- 2 Factors active in species behaviour:

- knowledge of the factors (especially human) which affect species and habitats and study of the consequences;
- study of population dynamics.

These findings are particularly important for:

- species subject to social pressure such as game, "pests", or protected species where there is a demand for human consumption, private collection, commercialisation, protection, etc;
- species which contribute to enriching or maintaining the biological heritage (eg ibex, bearded vulture reintroduction).

- 3 Finally, the Mercantour National Park is collecting data as part of a national information network, for example:

- Saharan dust particles;
- phyto-sanitary forest observation.

All this activity is carried out by Park Rangers who spend an average of 20% of their work time collecting this type of information. It is coordinated by the scientific department.

In the descriptive phase, wildlife population counts are an important part of work carried out by the Rangers. The results of these are shown in the following tables:

LARGE MAMMALS

Species	Mercantour NP CZ - 68,500ha and close PZ	
	Year	Count
Chamois	1981	1,815
	1989	4,800
Ibex	1981	82
	1989	150
Wild sheep	1981	457
	1989	1,444
Red deer	1981	-
	1989	250
Roe deer	1989	40

RAPTORS

Species	Mercantour NP	
Year	Count	
Golden eagle (couples)	1986	24
	1990	31
Peregrine falcon (couples)	1990	2
Eagle owl (couples)	1990	15

BLACK GROUSE IN THE MOLLIÈRES SECTOR  
MERCANTOUR NATIONAL PARK STUDY

Year	Density on test site Mollières Mercantour NP
1981	2.3/100ha
1986	2.7/100ha
1989	2.9/100ha

#### How inventory and observation data are used

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Computers play an important part in the specific use of this data. Alongside traditional methods of data collection and recording, the Mercantour NP has been experimenting with different computerised methods across the whole processing chain.

- 1980 - bibliographical data computerised.
- 1982 - computer assisted cartography.
- 1984 - satellite data used.
- 1986 - Geographical Information System (GIS) installed.
- 1988 - field work data computerised.

As far as the field work methods are concerned, the main aim is optimum computer use in all stages of information processing, using the following techniques:

- immediate data processing by on-site computer;
- transfer, management and development of data.

This method has already been used to draw up an inventory of rare species such as reptiles and orchids (see tables in annexe).

#### V SPECIES REINTRODUCTION AND POPULATION REINFORCEMENT POLICIES

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One of the most important goals of all National Parks is to maintain the biological diversity of their environments. The National Park has set up feasibility study programmes and has applied them to two species which were found in this area at the end of the last century: the alpine ibex and the bearded vulture. In 1987 a Scientific Committee was founded to pilot and develop the reintroduction projects. The first animal in the scheme, the alpine ibex was successfully reimplanted in close cooperation with the Argentera Park and the Università degli studi di Torino (1987-1989). In 1987 the Maritime Alps were officially put forward during the annual conference of the European Commission by the Mercantour and Argentera Parks for the forthcoming bearded vulture project.

#### Ibex project

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The ibex project was launched in 1987, European Environment Year. The ibex were released on three different occasions, totalling 38 animals. In 1991 a census of the ibex population showed 5 separate groups which contained around 47 animals in total. All the animals released were equipped with a radiotracking device.

A research programme of protected areas has been set up by the Mercantour, the Ecrins and the Vercors National Parks the scientific observation of colonising populations and the main points are:

- colonisation strategy;
- individual behaviour;
- population dynamics;
- ecological description of sites chosen by the animal populations;
- think tank on potential reintroduction sites.

It is important to note that during this project the two Parks were in close cooperation. These two wilderness areas, as shown earlier, are linked by the same border mountain range.

#### Bearded Vulture Project

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This international venture follows in the footsteps of the successful ibex project. It is of course included in the Alpine Reintroduction Programme in progress in Austria and Switzerland and its aim is to draw public attention to the problems of species reintroduction. The importance of implanting the bearded vulture was stressed as far back as 1978 when the National Park's creation was discussed, however it was not until 1989 that the Park's application was accepted by the international project team lead by the WWF, the International Nature Conservation Union and the Francfort Zoo. The first release is planned for 1992. The Mercantour National Park is included in the network of French observers to be established as soon as the first release takes place in the Haute Savoie. Two representatives of the Mercantour National Park (a scientific committee member and a personnel delegate) attend each annual conference of the European Commission to decide the reintroduction plan for the potential sites. The Raptor Intervention Fund has been asked to be the main partner in this initiative and the president of the World Mediterranean Raptor Group has also been contacted to bring international attention to this project.

#### Population Reinforcement Projects

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The Alpes Maritimes and Alpes de Haute Provence departments are particularly good habitats for the development of mountain ungulates. In accordance with the National Park's heritage aim of re-populating outside the Central Zone, action has been undertaken with different partners: the Forestry Commission, Game Federations and local councils. In certain cases livestock from the Central Zone has been used. Thus the Mercantour National Park has taken part in organising animal stocks and reinforcing ibex, chamois and roe deer populations in four different areas of two French departments.

## VI WILDERNESS MANAGEMENT IMPROVEMENT STUDIES

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As far as Park and peripheral zone management is concerned, the Park must be able to resolve the questions arising in these areas. The following traditional activities are being maintained and/or developed in the central zone:

- farming;
- forestry;
- fruit picking (limited to local families);
- pisciculture, fishing;
- barn and hamlet restoration;
- summer and winter tourist activities;

In this case, the problem is one of compatibility of these activities with the main aims defined by the National Park and to offer the users new management methods where necessary.

As far as the peripheral zone activities are concerned, those affecting the central zone Management are:

- game hunting;
- sport and tourism;
- improving the road network;
- aircraft flights;
- small electricity generators;
- forestry, apiculture, grazing, etc.

In all these cases the challenge is to pinpoint the problems linked to forest, farming, river ecosystem management and the influx of tourist, etc. These are complex problems which cannot be tackled all at once. It would be better to resolve them before they become a source of conflict.

Research projects undertaken in collaboration with other French National Parks, the Game Federation, University research teams and the National Research Institute have concentrated on the following themes :

### The Use of Alpine Pasturelands

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The study of the varied use of heath and alpine pastures by wild and domestic ungulates, coupled with the study of larch trees, has permitted the setting up of an experimental land management programme for alpine pastures and a systematic diagnosis of the use made of them by the flocks present in the National Park.

### Black Grouse Population Reinforcement

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This research programme examined the effects of sheep farming and tourism on numbers of Black Grouse and how to increase existing populations.

Development of Forestry and Alpine Pastures following changes  
in land management

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The Park has used a historical, ethnological and sociological approach to this problem, in order to understand former and present day usage of these areas. An ecological approach was used in the study of these two sites where human impact is often strong. Alpine pastures are often subject to high concentrations of sheep farming.

For further details on mountain forests please refer to the following document: "A historic study of forestry using map interpretation and photographic study, following the rural exodus (1900-1980)" and "A study of larch trees in the Mercantour National Park".

A methodological approach was used to develop the necessary analytical tools for research purposes. Inventories were carried out, maps created and vegetation observed using data collected from the satellite SPOT 1.

Results of these research programmes were used in collaboration with the European Community's Joint Research Group in a paper entitled : "Teledetection and Geocoded Information systems applied to management of mountain ecosystems, including the protection and exploitation of wild and domestic fauna and the development of marginal systems".

VII USE OF NATURAL HABITAT AND WILDERNESS DATA IN MANAGEMENT  
POLICIES

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Findings from field site observation help to formulate new priorities which allow the protection of natural heritage alongside the development or rehabilitation of abandoned farmlands and the restoration of an area's potential.

In this context, conservation measures are tools of land management. Rational ecological management methods can be tested in the National Parks and their peripheral zones, thus National Parks have a specific part to play in environmental policy on land management. The projects they are involved in can be applied to areas outside the Park, peripheral zones and beyond on a regional, national and international scale .

### Participation in Regional Research Programmes

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The Provence, Alpes, Côte d'Azur region (PACA) includes three National Parks, a National Reserve and three Regional Natural Parks. Wilderness areas managed by these other organisations have asked the National Park to:

- coordinate and synthesize information collected on the ecology, fauna and flora of the Alpes Maritimes (1990);
- set up a "PACA Environmental Cartographic Information Data Bank" covering the departments of this region (in progress);
- set up maps of the use of these environments from information sent by Landsat satellite pictures (in progress);
- contribute to the development plan for two new regional natural parks in the PACA region (1989);
- take part in writing a "red book" of threatened plant species in the PACA region (in progress).

### PARTICIPATION IN NATIONAL OBSERVATION NETWORKS

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#### Inter Parks programme

National Parks, Regional Parks and Nature Reserves have been increasing their efforts since 1980 to valorise and increase inter Park cooperation. This policy has allowed these organisations to play an active role in the national scientific community and increase understanding of the specificity of their role in the management of conservation areas.

The Mercantour National Park is present in the following areas of research:

- the study of black grouse populations;
- the study of mountain lakes;
- the development of a standardised data collection method for the study of flora, fauna, and protected sites;
- the study of alpine pasture formation, which received the MAB award;
- the eco-ethnological study of ibex;
- the study of ibex in the Alps and their reintroduction into the Mercantour, Ecrins and Vercors National Parks. For the first time a specific research programme was undertaken in order to understand the individual colonisation strategy of the ibex immediately following their reintroduction. The ungulates were observed using satellite tracking devices (ARGOS) with logistical help from the PEPS-SPOT, CNRS programme.

Since 1986, the Mercantour National Park, confronted by the specificity of data collection, valorisation and exploitation in the Mediterranean mountain ranges, has been the test site for the satellite SPOT.



## INTERNATIONAL COLLABORATION

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\* within the framework of the MAB programme (UNESCO).

One of the research projects selected by the MAB was the inter Park study : "Formation of high altitude pastures", this project was led by the Mercantour National Park and was the first of its kind to have been selected by the European Community.

The Park is currently involved in pilot research projects organized by ICALP: association responsible for the coordination of the following scientific research projects in the Alps:

- the INTEGRALP project, studying mountain agriculture and resource management (including forestry);
- the FUTURALP project, studying the sensitivity of alpine ecosystems to possible climatic changes (in close collaboration with the Berchtesgaden National Park);
- the study of protected areas within the Alps.

The Mercantour National Park, the Argentera and Alte Valle Pesio Regional Natural Parks (Italy) were created simultaneously in 1979.

The Mercantour and Argentera Parks share a 30 km long boundary, situated along the French-Italian border. These two protected sites, covering over 100,000 hectares, contain one of the last archaic ibex populations left in the Alps. Since 1982, both Parks have been working closely together on an ibex-population study; this fruitful collaboration has since been extended to include personnel exchanges, the sharing of data and joint participation at international conferences. At present, the two Parks are working closely together for the planned reintroduction of the bearded vulture in the area.

Since 1990, the Mercantour National Park has also been working with the Alte Valle Pesio Nature Reserve, to prepare the creation of a nature reserve in the Marguareis massif (France) which would share a common frontier with the Italian Reserve.

Finally the Mercantour and the Berchtesgaden National Parks will be sharing their expertise in satellite observation techniques for the reintroduction of the bearded vulture.

All of the above mentioned projects have allowed the Mercantour National Park to master techniques used in the monitoring of mammal populations and endangered sites. These techniques are vital for the efficient organisation of a modern National Park. They are also in line with national

considerations and questions relating to the application of european regulations.

#### AESTHETIC VALUE

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Any walker crossing the Mercantour National Park is struck by the exceptional diversity of landscapes, the beauty of which is enhanced by the sunshine of the southern Alps. Harsh outlines and barren, rocky wilderness contrast with rolling prairies and forests. Each valley has its own particular character: the Roya valley's steep, enclosed gorges are transformed into the gentle pastures of the Ubaye valley.

In the forests, the autumnal reds and oranges of the larch seem to set the landscape alight, joined by the rowan, whose vivid red berries brighten the soft, muted colours of autumn. During the springtime, the underwoods are covered with a profusion of ruby-red rhododendrons.

The visitor is also confronted by the traces of the glaciers which literally sculpted these landscapes, leaving behind a myriad of mountain lakes.

This delightful scenery is further accentuated by the multitude of colours found in the rock formations: Daluis valley with its red-orange "canyons" of ferric rocks transports us to the Far West and it was the red pelite that Bronze Age man used in the Vallée des Merveilles to record their ancient beliefs.

The Mercantour National Park offers the visitor a unique wealth of landscapes, colours and forms, giving the impression of having visited innumerable regions, each with its own particular beauty.

#### CULTURAL VALUE

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The visitor, curious to discover the role played by man in these valleys will be rewarded a thousandfold by their unique social history.

If the Mercantour was literally sculpted by the gigantic geological upheavals of a long distant age, man has also marked the landscape. The signs of his presence can be seen both in the central and peripheral zones of the Park.

#### WORSHIP

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At over 2000 metres above sea level in the Vallée des Merveilles, Bronze Age man worshipped his remote gods, carving on the rocks to appease the Bull God, Lord of storms and lightning.

It is thought that the Vallée des Merveilles contains the richest open-air collection of petroglyphs in Europe. Covering an area of over 30 km<sup>2</sup>, with the Mont Bègo as its focal point, over 30,000 petroglyphs have been found. They are mainly representations of tools, weapons, geometrical and human forms. This spectacular open-air museum (including the Vallée des Merveilles and the Fontanalbe cirque) is an officially listed site.

The Mercantour National Park protects this fragile site and its petroglyphs by restricting and controlling visitor access with constant round the clock observation and by training qualified guides to accompany the public. A visitor circuit with information panels has also been installed on the site to help the visitor to appreciate the exceptional importance of these valleys. An eventual listing by UNESCO as part of the World Heritage programme is envisaged.

All of the Park's valleys are rich in churches and chapels, however, the ornate, richly decorated chapels of the fifteenth century with their profusion of frescoes which amaze the visitor. The chapel of Notre Dame des Fontaines in the Roya valley has been justifiably called the "Sistine Chapel" of the southern Alps. It is rivalled in beauty only by the edifices of the Tinée valley, where the Italian artists Baleison and Canavesio crossed the Alps from Italy with their exceptional talent and rich iconography. These chapels were often dedicated to patron saints renowned for their healing powers. Saint Roch and Saint Sebastian were thought to have special powers over the plague and other fatal diseases.

In Saint Dalmas de Valdeblore (Vésubie) a crypt was recently discovered. It is thought to be the only remaining example of the ancient "Lombard" architectural style.

Baroque art and its Italian influences abound in the chapels and churches of these valleys.

Today it is certain that religion no longer plays such an important role in daily life. However, a number of traditions have resisted the passage of time: the Bonette pass in the Tinée valley, or Notre Dame de Fenestre in the Vésubie, still witness the traditional pilgrimages, accompanied by large numbers of faithful.

#### ARCHITECTURE

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The high-perched villages of Saorge, Roure and Roubion have kept their authentic character, displaying a wealth of architectural styles.

The spectacular aspect of these villages was obviously imposed by the need to defend local populations during the countless battles and invasions of past ages.

The majority of these habitations were divided into three sections: on the ground floor the animals were kept, above them the family was lodged and the loft was used for drying the crops and storing the agricultural equipment. These overcrowded and insanitary buildings, where man lived side by side with his animals, without running water, were an ideal breeding ground for plague and cholera, epidemics that regularly wiped out large numbers of villagers.

Roofing materials used in or outside the villages depended on their location. In the north of the Mercantour larch wood was used, whilst the south used the richly coloured slates of the region: mauve in Moyenne Tinée, burgandy in Saorge and grey-green in Tende.

The need to protect the population from outside attack not only dictated the architectural style of the villages, but was also responsible for the wealth of military architecture in the Mercantour.

In the heart of the Park itself, the Authion massif in the Roya valley witnessed fierce fighting between Bonapartist forces and the Italian Piedmont armies in 1794. Many military buildings were constructed between 1885 and 1945 and during the Second World War German forces were able to hold out until April 1945, in the maze of underground galleries dug out of these austere mountains.

In the Haut Verdon, the picturesque fortified city of Colmars (designed by Vauban) continues to attract many visitors, whilst in Ubaye, Tinée and Tende (which was Italian up to 1947), there is a rich heritage of military architecture, often found at high altitudes.

#### COMMUNICATION AND COMMERCE

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Even before the construction of numerous military routes by the Italians from 1930 to 1940 in the Tende area, the Mercantour was always rich in cultural and commercial exchanges, despite the seemingly insurmountable geographical and climatic barriers.

The well-named "Salt trade routes" were used to transport this valuable commodity from Toulon and Hyères, via Nice to the Piedmont region in Italy. One of these vital routes crossed Saint Martin Vésubie, the other crossed Tende. The latter was by far the most dangerous and for a long time the Lords of Tende were accused of robbing the merchants and travellers who dared to cross these valleys.

During the Middle Ages, salt played a vital role in the local economy. It was used for the conservation of foodstuffs and the working of leather.

It must not be forgotten that until the relatively recent

construction of road networks, these valleys could only be reached by the ancient mule tracks which followed the tortuous contours of the landscape - climbing upwards to the distant peaks and plunging down into the dark and mysterious valleys.

The turning point for this region came after its official attachment to French territory during the Second Empire in 1860 and was continued under the Third Republic. This period saw the start of large-scale civil engineering projects: the Tende tunnel, the Nice-Barcelonnette road crossing the Cayolle pass and the Nice-Cuneo railway line, completed in 1928, destroyed in 1944 and reopened in 1979. This railway line, which confronted its constructors with continual changes in altitude, is a miracle of civil engineering. Lastly, in 1941 one of the highest roads in Europe was completed, crossing the Bonette-Restefond pass at 2802 metres above sea level.

#### WORK

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Man, confronted by this inhospitable environment and his need for food, proceeded to transform these mountains and valleys into a giant amphitheatre, with a multitude of terraces held in place by carefully constructed dry stone walls.

Today, the difficulty of this lifestyle has meant the gradual abandoning of these ancient methods, but the terraces remain, tangible proof of the force and tenacity of these men and women.

In other parts of the Mercantour, particularly the north Ubaye and the Haut Var, the landscape was shaped by intensive sheep farming, which was also the region's major economic resource.

The Ubaye valley was quick to see the financial advantages of combining local flocks and those from other regions on unused pastures. To maximise this new source of income it was vital to increase the size of available pastures: forests were cleared, plantation of deciduous larch trees was encouraged and former hayfields were transformed.

Today, Ubaye is one of the most important areas for mountain sheep farming; however, it is often behind various ecological problems observed in the this area.

Local traditions are still heavily influenced by sheep farming. The "Pastorale de Fours" is but one example: with local shepherds singing and acting out the Nativity for the mid-night mass at Christmas.

Traditionally, forestry and timber have always had considerable economic importance in these valleys. During the seventeenth century wood was sent on the Var river from

Entraunes to supply the naval shipyards at Genoa and Toulon.

Since the beginning of time itself man has searched for minerals and metals. The Vallauria mine near to the Vallée des Merveilles, exploited a zinc and argentiferous lead seam up to 1930.

The mine is believed to date from the Phoenician period, we know that a bronze statuette was discovered, known as the Bégo warrior, and has been dated back to protohistoric times. Amen in the Haut Var, above the Daluis gorges, was the site of an important Bronze Age copper mine and even saw a fruitless gold rush, after traces were found in 1770.

#### EMIGRATION

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Obviously these remote valleys could not provide work for everyone throughout the year. The harsh conditions and the problems of subsistence farming meant that at certain periods there were just too many mouths to feed.

The inhabitants of the Ubaye valley have long practised seasonal migration, selling locally produced goods (cloth and silkware) in such far away places as Burgandy or Holland.

Following the settlement of the Arnaud brothers in Mexico in 1821 and up to 1914, increasing numbers of Ubaye's villagers made this long journey to sell their cloth, open shops and for the lucky few, to find success in the textile industry.

If these "Mexicans" seem to have put little back into the local economy, they left behind the proof of their financial success. In Barcelonette and Jausiers luxurious houses and costly family funeral vaults testify to their former wealth.

In the Haut Var emigration was also widespread, although the aspiring migrants looked no further than Marseille.

It is worth noticing that a descendant of a Péons family, a certain Désirée Clary, after a brief liason with Bonaparte, married the General Bernadotte and became Queen of Sweden, founding a dynasty which is still on the throne today!

Her sister, Marie Julie Clary was to marry Joseph Bonaparte and became Queen of Naples and later of Spain.

#### AUTONOMY VERSUS TOURISM

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It was much later that alpine sports were discovered by the public. A far-off descendant of the Marquise de Sevigny, Sir Victor Spitalieri de Cessole, joined the French Alpine Club (CAF) in 1889 and brought mountaineering to the public eye. He explored virtually all the major peaks of the Mercantour-Argentera massif, leaving behind a mountain in his name: the Cessole peak in the Argentera massif.

It was also due to his active involvement that the first

mountain refuges were built between 1901 and 1905 and the first cross country ski expeditions took place.

Winter sports began early in the Mercantour. As early as 1909 the parish of Beuil (Haut Var) with its five hotels organised a skiing competition, closely followed by Jausiers in 1914.

A real turning point for winter sports was in 1934, when the village of Sauze invested in one of the first mechanical ski lifts. The skiers, seated in special sledges, were pulled up the 300 metres of slope by a tractor on a pulley - a long way from our modern ski lifts!

If we look closely at the social history of these valleys they have been marked by a long tradition of self-sufficiency and insularism which characterises their inhabitants. Cut off from the world, living in inaccessible valleys, these communities developed a strong sense of local identity and pride.

Since the feudal domination of these valleys by the County of Nice, the Piedmont and Sardinia, the inhabitants have never fully accepted being under the thumb of Nice or Turin. These were faraway cities, incapable of understanding the specific nature of these valleys and their problems.

In 1860 when the region was centrally controlled from Paris, local mentalities changed little, but it was the beginning of an opening towards the outside world, with the exodus of local populations towards the easier life on the coast.

Vestiges of this fierce independence and insularism were to be seen when there was first talk of creating a National Park in the 1960's. The difficulties experienced during negotiations prior to the creation of the Mercantour National Park can be attributed to this long tradition of local autonomy.

Fortunately, ten years after the Park's creation this attitude of suspicion and mistrust has given way to one of co-operation and the many joint ventures undertaken by the Park and local authorities bear witness to this.

#### RECREATIONAL VALUE

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In a region where the coast is the victim of the excesses of urban developers, the Mercantour National Park as an officially protected area is doubly valuable.

The Park's presence has prevented the creation of three new ski resorts, and the extension of those already existing in the peripheral zone.

However, the Mercantour National Park is open to all visitors using the major road networks that cross it, via the Bonette and Cayolle passes.

The Park is a walkers' paradise, with 600 km of well-marked and maintained paths. It is thanks to a series of maps prepared jointly by the National Park and regional government authorities, that these paths can be easily located by the general public.

In areas of special interest to the public, the Park has initiated the use of unique visitor information facilities. After close study of techniques used in American and Canadian National Parks (following the twinning of the Mercantour and Banff National Parks in 1982) the Mercantour National Park has become one of the leaders in this field.

This involves the creation of special information panels describing the landscape, fauna, flora, local history and geology, which are situated the length of a particularly well-frequented path or place of interest.

Five major sites have already been equipped in this way:

- the Authion circuit (accessible by car) opened in 1985,
- the Allos lake walk, opened in 1986,
- the Vallée des Merveilles, opened in 1987,
- the Larche cross country ski circuit, opened in 1988,
- the Bonette-Restefond panoramic road circuit, finished in 1990.

Sixteen mountain refuges, mostly run by the CAF, are situated in the Park, allowing the walker a well-earned rest, whilst in the Park's peripheral zone at least ten hostels provide a wide range of accomodation to suit all budgets.

The number of visitors to the Park is estimated at about 400,000 each year, of which 30-40,000 go to the Vallée des Merveilles alone. These high figures are not surprising, as the walker is often rewarded by the sight of placid ibex in Valmasque, or the rough-and-tumble games of young marmots. For the majority of visitors it is this communion with nature that is the reason for their visit to the Park.

The Park plays a greater role in the conception and organisation of guided walks in the Park, than in their actual day to day realisation, which is carried out by local mountain guides. This is part of a deliberate policy by the Park to encourage local initiatives; the Park itself intervenes only to organise occasional half-day nature walks.

In the valleys that lie close to places of special interest several information centres have been set up in order to meet the public's demand. Fourteen information centres were open in 1990, welcoming 90,000 visitors.

The Mercantour is a relatively young National Park (opened in December 1979) and does not yet have permanent information centres in all its valleys. Those already existing have



become the focal point for a wide range of activities involving the public: exhibitions, slide shows, conferences and tourist information to name but a few. They are also the site of the Park's extremely popular computerised nature games, for young and old alike.

Since its creation, the Park has always encouraged contact with schools in the peripheral zone; the rangers work closely with local teachers who request help with long term educational projects, debates, slide shows or guided walks to places of special interest.

The Park has always encouraged this continued collaboration, as opposed to work with pupils visiting the park for occasional outings or field trips. The priority is deliberately given to requests made by local schools, especially when long term educational projects are envisaged.

The Park has published a variety of literature for the general public, or for use in schools: hiking guides, guides to the Park's fauna and flora or its cultural heritage. The Park in partnership with IBM, has also produced video cassettes and computer software, using all the new technologies to reach the public.

### 3. EUROPEAN VALUE JUSTIFYING THE APPLICATION

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The Mercantour National Park is situated at the most southern tip of the Alps. The interest of this Park goes beyond mere national boundaries and considerations, due to its unique natural beauty and the wide variety of research projects it has undertaken.

An exceptional heritage

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The Mercantour is historically a totally European park. It was originally part of the King of Italy's private game reserve, along with the Argentera Regional Natural Park.

Above all, the Mercantour is the only National Park that is situated on the geographical and climatic crossroads of the Alps and the Mediterranean. This is the reason for the incredible variety of botanical and insect species to be found in the Park. It is the only Park in Europe where all the successional stages of vegetation can be seen: from olive trees to pine, spruce, arrolla pine and larch trees, reaching heaths covered in rhododendrons and alpine pastures at over 2500 metres above sea level.

Of the 4200 species of plants known in France, almost 2000 are to be found in the Mercantour National Park and 30 of these can be found nowhere else in the world!

The Mercantour National Park is also the only protected alpine site where the main mountain ungulates can be obser-

ved: chamois, ibex, wild sheep and red deer. It is also the only area in France to have a population of wild sheep that is totally protected from hunting. Within the Park the number of golden eagles is also relatively high.

The Park owes its unique character to the men from far-distant ages that left behind indelible signs of their culture and beliefs. At less than 80 km from Nice, in the remote glacial valleys surrounding the Mont Bégo, Bronze Age man left several thousand petroglyphs testifying to his religious faith and fears. Simple designs, both naive and symbolic, they also reveal much about Bronze Age agricultural techniques.

Although it is protected for most of the year by a thick layer of snow, the petroglyphs have nevertheless suffered in recent years from continual vandalism.

The Mercantour National Park is responsible for the protection of this zone (a recently listed site). It is under constant observation and access is controlled by means of guided visits. Information panels seek to inform the visitor of the importance of this open-air museum.

Because of the importance of this valley, its classification by UNESCO as part of the World Heritage programme is to be envisaged in the near future.

Man has also marked these valleys with numerous military edifices, which attract large numbers of visitors.

The wealth of religious constructions has already been mentioned in some detail: mediaeval frescoes, chapels and churches, rich in Baroque and Italian influences, add to the cultural wealth of this region.

Finally, it is worth remembering that agricultural and pastoral activities have done much to shape the landscape and history of the area: steep terraces held up by painstakingly constructed stone walls, alpine pastures, forest clearances, the traces remain today.

It is this symbiosis between man and nature that gives the Mercantour National Park its unique character.

#### Exemplary Actions

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All these above-mentioned qualities have encouraged a number of important and valuable scientific research projects.

The project which creates the most enthusiasm amongst members of the public is without doubt the reintroduction of ibex into the Park, which took place from 1987 to 1991, in close cooperation with the Argentera Regional Natural Park. This project was the perfect illustration that the natural world knows nothing of our artificial frontiers and still

less of the problems of nationality or legal status!  
The observation of ibex by satellite was tested for the first time in the Mercantour.

The project to reintroduce the bearded vulture is also a joint venture with the Argentera Park, the reintroduction taking place in both France and Italy. The Berchtesgaden Park will play an important role in the satellite tracking of the birds released.

The Park is also currently collaborating with the Alte Valle Pesio and Tanaro Reserves over the creation of a Nature Reserve in the Marguareis massif (France).

The Mercantour National Park has piloted the use of innovative cartographic techniques, allowing the recording of data necessary for the management of the Park's environment, making it possible to foresee landscape evolution. The Park has widely used data from the satellite SPOT and has recently been asked to share this expertise with other National Parks (the advantages of which have already been made available to the region Provence, Alpes, Côte d'Azur).

The Park has undertaken all these scientific projects within the framework set up by UNESCO, or more precisely the MAB programme, which seeks to encourage cooperation on an international scale.

As already outlined, the Park was chosen by the MAB to undertake the project concerning the Formation of Alpine Pastures, and has participated in a number of projects (especially those coordinated by ICALP) concerning the European Alpine massif.

The Park has played a leading role not only in the scientific world, but also in its use of visitor information circuits, adapting techniques observed in American Parks, helping the visitor to appreciate the fauna, flora, landscape and social history of the Park by means of special panels installed in sites of special interest.

#### 4. DESCRIPTION OF GEOGRAPHICAL POSITION AND/OR OUTLINE ON A MAP (Scale 1:50,000 or approximatly)

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Please refer to appendices and list of documents available at the Secretariat:

- IGN map N°61 Nice-Barcelonette (scale 1:100,000).

#### 5. SERIES OF COLOUR POSTCARDS ILLUSTRATING THE MERCANTOUR NATIONAL PARK

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Please refer to appendices and list of documents available at the Secretariat.

## 6. PROTECTIVE MEASURES

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The Mercantour National Park was established by Decree N° 79.696 of 18 August 1979. The tasks assigned to the Park are defined in Act N° 60.708 of 22 July 1960, modified by Decree N° 61.1195 of 31 October.\*

It is a public body, under the control of the Ministry of the Environment. Policy is defined by the Environment Minister, and ratified by the Park's Council, which is made up of local government representatives, environmental groups, and various qualified persons.

The Director is nominated by the Environment Minister and is responsible for all aspects of the Park's management.

The Park's regulations apply to its central zone (68,500 hectares). In the peripheral zone (136,500 hectares) the Park's role is to encourage local social, economic and cultural development.

In the central zone, the Park is empowered to protect the fauna, flora, soil, subsoil, atmosphere, water, natural environment and landscape.

For example, hunting, picking flowers or plants, camping, litter, fires and dogs are strictly forbidden.

Any new constructions or developments are subject to the Director's approval, and any new commercial activities are not allowed.

Lastly, access to the Park with a motorised vehicle is strictly controlled.

These regulations are obviously backed up by a series of legal sanctions.

The Park, like all other French National Parks, is empowered to implement the reception and information of the public.

\* (Please refer to appendices and list of documents available at the Secretariat for copies of legislative texts).

7. APPENDICES: LIST OF DOCUMENTS AVAILABLE AT THE SECRETARIAT

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1. IGN map N° 61 Nice-Barcelonnette (scale 1:100,000).
2. Text of the Act N° 60.708 of 22 july 1960.
3. Decree N° 61.1195 of 31 october 1961.
4. Decree N° 79.696 of 18 august 1979.

POSTCARDS ILLUSTRATING THE MERCANTOUR NATIONAL PARK:

5. Box of 20 landscape postcards by "In'Edite".
6. 23 fauna and flora postcards by "Yvon".
7. The Mercantour National Park by P. Merveilleux du Vigneaux and the Mercantour National Park.
8. The Mercantour National Park by L. Birman.
9. The Argentera-Mercantour Guide by B. Charpentier. (30 selected walks in the Moyenne Tinée, Vésubie, Roya-Bévéra and the Argentera Natural Park).
10. Guide to the North-East Mercantour by B. Charpentier. (30 selected walks in the Haute Tinée, Haut Var, Haut Verdon and Ubaye).
11. Voyages N° 1: Roya-Bévéra by A. Klein.
12. Voyages N° 2: Ubaye by Avocat, Flamain and Chondroyannis.
13. Souvenir Album of the Vallée des Merveilles by E. Boyer.

"CAIRNS" COLLECTION, OR "LES CARNETS DE LA DECOUVERTE":

14. Beuil.
15. Haut Verdon Valley : A collection of seven titles.

THE BEARDED VULTURE:

16. BT N° 1027 The Bearded Vulture.
17. The Bearded Vulture, a poster-folder by the Mercantour and Argentera Parks.
18. The Golden Eagle, a poster-folder by the Mercantour National Park.
19. Ibex in the Mercantour-Argentera regions, a poster-folder by the Mercantour and Argentera Parks.

20. Nice Matin-Mercantour National Park, special Summer issue 1990-1991.
21. Mercantour National Park-PACA Region; Information leaflet in English and French.
22. Mercantour National Park; Information leaflet in English, Italian and French.

SCIENTIFIC STUDIES BY THE MERCANTOUR NATIONAL PARK:

23. Savoir Faire des Parcs Nationaux: Tables 1 & 2.
24. Synthesis of Scientific Studies, classed thematically.
25. Formation of high altitude pastures (MAB programme).
26. Graphical synthesis of rare species data : Orchid inventory.
27. List of the Park's publications.