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EUROPEAN COMMITTEE FOR THE CONSERVATION
OF NATURE AND NATURAL RESOURCES

Committee of experts - protected areas

Integral nature reserve of Sasso Fratino (Italy)

APPLICATION FOR THE AWARD OF THE EUROPEAN DIPLOMA

Ministry of Agriculture and
Forestry
Gestione ex Aziende di Stato
per le Foreste Demaniali
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1. TYPE

Integral nature reserve

2. CHARACTERISTICS AND SCIENTIFIC, AESTHETIC AND CULTURAL VALUE2.1 General information about the Casentinesi forests

The integral nature reserve of Sasso Fratino, which is located in the northern Apennines, forms part of the "Foreste demaniali casentinesi". These forests cover a total area of 10,600 hectares and straddle the watershed between the Adriatic and Tyrrhenian seas. They lie partly in Tuscany and partly in Emilia. Their name comes from the Casentino valley which is in the upper reaches of the Arno and belongs to Tuscany.

Although today half of these forests are in the Emilia region, they have always had more administrative and historical links with Tuscany than with Emilia.

2.2 Short history of the Casentinesi forests and Sasso Fratino

In the Middle Ages the Adriatic side of the Apennines, where the Sasso Fratino district is situated, belonged to the Counts Guidi di Poppi (Tuscany).

In 1012 a certain Maldolo donated a small piece of land on the Tyrrhenian or Tuscan side to Saint Romuald, the founder of the monastic order of Camaldolites. The hermitage of the Camaldolites was built on this plot which was called "Cà Maldoli" (house of Maldolo) and which today is in the Casentinesi forests. The Camaldolites gradually extended their estate to 1,400 hectares, most of which was wooded. They took great care of the forest and planted a wide area with pines from pure stock. The Camaldolites worked out a forestry code with stringent rules governing planting and felling. In 1886, when the order abolishing religious corporations was passed, the State expropriated the forest, the hermitage and the monastery of the Camaldolites and took over the management of this part of the Casentinesi.

After an uprising in the fourteenth century, the Republic of Florence expropriated the Adriatic or Romagnese side from the feudatories, the Counts Guidi, and gave it to the Fabric Fund of Florence Cathedral which entrusted its management to the "Consules" of the "Arte della lana" (wool merchants guild).

The Fabric Fund of the Cathedral ran the forest according to economic criteria, but it had a hard struggle to prevent gradual Romagnese encroachment upon the forest and estate.

In 1838 the ownership of this part passed to the Grand Duke of Tuscany who gave the task of reorganising it to a Czech engineer, Karl Simon, who Italianised his name into Carlo Siemoni and settled permanently at Pratovecchio, where the Fabric Fund of the Cathedral had its offices and where the administrative authorities of the Casentinesi nature reserves have their headquarters today. In 1941 this property passed to the Italian State, which already owned the Camaldolites' forest. The Casentinesi estates were gradually enlarged so that by 1970 they had reached 10,600 hectares. After 1970 the implementation of regional organisation measures meant that State forests were transferred to the regions, apart from those which had been classified as nature reserves.

Sasso Fratino was the first area in Italy to be classed as an integral nature reserve.

In 1959, the Administrative Board of the State Forestry Office, acting on a joint proposal by Professor Mario Pavan, director of the Agrarian Entomology Institute of Pavia University, Mr Fabio Clauser, administrator of the Casentinesi forests and Mr Angelo Zambelli, director of the Azienda di Stato per le Forests Demaniali (State Forestry Office), decided that 113 hectares of the forest on the Romagnese side of the Casentinesi, below Poggio Scali, should be declared an integral nature reserve.

This internal administrative measure was confirmed in 1971 by an order of the Minister of Agriculture and Forestry. Successive orders in 1972 and 1980 extended the integral nature reserve of Sasso Fratino to 261 and 551 hectares respectively.

Since 1959 four biogenetic nature reserves have been set up in the Casentinesi forests in addition to the integral reserve of Sasso Fratino.

The map shows these five areas which are still administered by the State. They have a total area of 5,689 hectares.

2.3 General description, climate and geology of Sasso Fratino

The integral nature reserve of Sasso Fratino is situated on the northern (Adriatic) side of the Apennines and reaches the Apennine ridge. Its highest point, Poggio Scali, lies at 1,520 metres and its lowest, Ponte di Campo alla Sega, at 650 metres.

Administratively speaking, it is on the territory of the municipalities of Bagno di Romagna and Santa Sofia in the Forlì province of Emilia.

It is a rugged area facing north-north-east. It has precipitous rocky slopes, whose average gradient is 1 : 1.5, but in several places there are gradients of more than 1 : 1.

The meteorological data were recorded at an observatory 5 kms from the reserve at an altitude of 1,068 metres, where conditions are very similar to those in Sasso Fratino, even as regards exposition. The following figures refer to a period of 26 years. Annual average rainfall : 1,860 mm, of which 242 mm fall during the three summer months, with rain on 114 days per year. Snowfall : on average 20 days (between November and April). The snow lies for 64 days.

The average annual temperature is 8.4°C. The temperature tops 10°C for 157 days of the year. There is a temperature variation of 18.5°C over the year, average temperature in the hottest month being 18°C and -0.5°C in the coldest.

The geology of the area is extremely uniform and consists of rocks in the Miocene arenaceous marl series which extends through much of the Romagnese Apennines. The essential characteristics of this series are bands of sandstone rock (comprising silica granules bound by lime) alternating with layers of marl shale. Erosion has cut deeply into these rocks, especially the marl, and this is what has formed the jagged shapes and the steep narrow valleys between escarpments.

At Sasso Fratino the grey-brown podzolic soil which comes from these rocks is generally fairly deep. Most of the soil is mature with a good reserve of nutrients and high water-retaining capacity.

2.4 Vegetation

The reserve's vegetation is typified by the mixed forest of beech and pine which predominates at an altitude of between 800 and 1,300 metres.

Beech is generally the dominant species, except in areas where pines were planted by man. A variety of other trees can be found, but they are always in the minority. These are : sycamore (*Acer pseudoplatanus*), Norway maple (*Acer platanoides*), common ash (*Fraxinus excelsior*), wych elm (*Ulmus glabra*), common yew (*Taxus baccata*), holly (*Ilex aquifolium*), wild cherry (*Prunus avium*), rowan (*Sorbus aucuparia*), common laburnum (*Laburnum anagyroides*), goat willow (*Salix caprea*), etc.

These species constitute the dominant climax forest, most of the reserve lying between 800 and 1,300 metres.

The woods between 1,300 metres and the line of the Apennine ridge are largely made up of beech accompanied by sycamore. The last stunted pines are found towards the top at about 1,400 metres.

Below 800 metres the beeches and pines give way to oak woods interspersed with other deciduous varieties : Turkey oak (*Quercus cerris*), sessile oak (*Quercus petraea*), Italian maple (*Acer opalus*), large-leaved lime (*Tilia platyphyllos*), downy oak (*Quercus pubescens*), hornbeam (*Carpinus betulus*), European hop hornbeam (*Ostrya carpinifolia*), manna ash (*Fraxinus ornus*), common hazel (*Corylus avellana*), wild service tree (*Sorbus torminalis*), field maple (*Acer campestre*), etc.

In 1952-53 when the forestry development plan was revised, a dendrographical survey was carried out in the 113 hectares (altitude 900 - 1,520 metres) which constituted the first nucleus of the nature reserve in 1959. 31,163 trees were counted in this area on that occasion. Their distribution was as follows : beech 23,355, pine 6,341, sycamore and Norway maple 833, wych elm 378, hornbeam 172, lime 52, ash 21 and Turkey oak 1.

The volume of these trees (on average 420 m³ per hectare, with peaks of 900 m³), was worked out on the basis of trees with a diameter of over 50 centimetres, and in fact the average volume of the 31,163 trees measured was over 1.5 m³.

The total biomass is much higher, as trees with a diameter of less than 20 centimetres, bushes and herbaceous vegetation were not included.

In general the trees in the reserve are very tall and majestic. Pines and beeches 80, 90 or 100 centimetres in diameter and 35 to 40 metres tall are not rare, and maple and ash which are not much smaller can also be found. The largest pine in the reserve has an elliptic diameter at its base of 1.88 metres and an estimated height of 42 metres. The most interesting feature is however the forest's overall composition, which has hardly been altered by man, although we have evidence that a very small number of trees were cut down after 1721 and that felling continued until 1953 or 1958 in the first nucleus of the reserve and until 1960 or 1968 in the areas which were subsequently added.

These early populations are extremely interesting and exhibit features very similar to those of a totally natural forest.

In this connection, François Ramade states in "Eléments d'écologie appliquée" (Paris, 1974) that "no virgin forest still exists in western Europe, apart from a few hundred hectares in the Italian integral reserves of Casentinesi (in the Apennines) which is a tiny vestige of the huge Würmian beech grove".

It may be added that the following species of trees are also present in the reserve : silver birch (*Betula pendula*), whitebeam (*Sorbus aria*), lock elm (*Ulmus minor*), wild pear (*Pyrus communis*), etc.

The reserve is also important for its rich herbaceous flora where mesophyllic species typical of large beech groves predominate : *Milium effusum*, *Allium ursinum*, *Cardamine bulbifera*, *Cardamine heptaphylla*, *Polygonatum verticillatum*, *Stellaria nemorum*, *Impatiens noli-tangere*, *Mercurialis perennis*, *Galium odoratum*, *Sanicula europaea*, *Anemone nemorosa*, *Corydalis bulbosa*, *Adenostyles alpina*, *Geranium nodosum*, *Euphorbia amygdaloides*, *Polystichium aculeatum*, *Melica uniflora*, *Circaea lutetiana*, etc.

2.5 Fauna

The fauna of Sasso Fratino is no different from that in the Casentinesi forests.

Large mammals are however encountered less frequently here than elsewhere, because the forest is dense and there are no large clearings.

Ungulates are the most obvious fauna : red deer, roe deer, fallow deer and mouflon. Red deer and roe deer are indigenous to the Apennines. Red deer has been reintroduced and fallow deer and mouflon were introduced about a century ago.

The Casentinesi forests have been restocked with the four above-mentioned species to make good the massive destruction during the last war.

Wild boar were reintroduced into the Casentino in the early seventies by the provincial administration of Arezzo and by hunting associations.

Wolves have more or less disappeared, but there are sporadic sightings in the Casentinesi forests.

The following mammals may also be mentioned : polecats, martins, weasels, badgers, squirrels, edible dormice, hazel mice, hedgehogs, moles, etc.

The golden eagle has been seen several times near the highest summits encircling the "La Lama" area.

In the reserve there are many other migratory and sedentary species of birds including : the honey buzzard (*Pernis apivorus*), goshawk (*Accipiter gentilis*), buzzard (*Buteo buteo*), kestrel (*Falco tinnunculus*), partridge (*Perdix perdix*), wood pigeon (*Columba palumbus*), turtle dove (*Streptopelia turtur*), barn owl (*Tyto alba*), eagle owl (*Bubo bubo*), hoopoe (*Upupa epops*), Green woodpecker (*Picus viridis*), great spotted woodpecker (*Dendrocopus major*), song thrush (*Turdus philomelos*), fieldfare (*Turdus pilaris*), etc.

3. EUROPEAN INTEREST JUSTIFYING THE APPLICATION

Sasso Fratino has remained in the admirable condition in which we find it today because it is a long way from any main roads and is set in impassable terrain.

Forest ecosystems as close to nature as those found at Sasso Fratino are extremely rare, not only in Italy but throughout western Europe.

Sasso Fratino is extraordinarily interesting not only from the scientific but also from the aesthetic point of view, owing to its wide variety of species, the complexity and composition of the vegetation and the majesty of its ancient trees.

4. DESCRIPTION OF GEOGRAPHICAL POSITION

Geographical position is described under 2.1. Topographical maps on the scales 1 : 100 000 (4.1) and 1 : 25 000 (4.2) are available in the Secretariat.

5. PHOTOGRAPHS

27 postcards and the little booklet "Sasso Fratino" which contains about 40 illustrations showing the main features of the reserve are also available in the Secretariat.

6. CONSERVATION MEASURES

The conservation measures in force at present were laid down in the orders setting up and enlarging the integral nature reserve of Sasso Fratino, published on 26 July 1971, 2 February 1972 and 25 September 1980. Copies are available in the Secretariat.

Under these orders people are allowed to enter the reserve solely for the purpose of study, education and administrative and supervisory duties. All other human activity is prohibited.

Staff of the Ministry of Agriculture and Forestry and forest rangers protect and manage the reserve. It is administered by the same department as the Casentinesi nature reserves, whose headquarters are at Pratovecchio (Arezzo).

Visitors to the reserve must have a permit and be accompanied by a specialist from the Pratovecchio Office.

Visitors are taken across the reserve via a little path running from Poggio Scali (1,520 m) to Ponte di Campo alla Sega (650 m). The distance can be covered on foot in two hours, but the points of departure and arrival at either end of the reserve are a long way from the main road and have to be reached across country or by tracks which are closed to private vehicles.

Unauthorised visitors therefore find the nature reserve of Sasso Fratino very inaccessible. The number of people (most of them scientists, students, etc) who have visited the reserve in recent years is as follows : 512 in 1980, 628 in 1981 and 533 in 1982.

The wardens are answerable to the Pratovecchio office. This office (including its four observation posts) has a staff of 35.

The posts of Badia Prataglia (1 forestry official and 4 foresters) and Campigna (4 foresters) keep watch over Sasso Fratino. In addition, at some seven to eight kilometres from the reserve there is the La Lama post where two people are on duty during the summer.

7. REFERENCES TO PUBLISHED DESCRIPTIONS

The following publications have been sent to the Secretariat :

- 7.1 Bibliography concerning the Casentinesi forests
- 7.2 The following publications concerning the nature reserve of Sasso Fratino
 - 7.2.1 Albertina Baggini, La riserva naturale integrale di Sasso Fratino, 1960
 - 7.2.2 Alberto Hofmann, L'Abrieti-faggeto di Sasso Fratino ed i suoi aspetti fitosociologici
 - 7.2.3 Paolo Paoli e Giovanna Cellai Ciuffi, Analisi polliniche di sedimenti lacustri presso Passo Porcareccio (Appennino Tosco-Romagnolo), 1973
 - 7.2.4 Alberto Tigliè, La riserva naturale integrale di Sasso Fratino, 1974
 - 7.2.5 Michele Padula, Problemi di conservazione degli ecosistemi forestali con riferimento all'Appennino tosco-romagnolo, 1978
 - 7.2.6 Michele Padula, Sasso Fratino, 1982