

Natural values, coastal and marine ecosystems of the Circeo National Park: conservation priorities

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ABSTRACT

The variety of environments that characterizes the Circeo National Park must also take into account, in addition to the terrestrial natural values that are present, even the importance of marine and coastal stretches that currently do not benefit from a similar regime of protection, preserving instead important elements of wealth for marine biodiversity. This added value is represented in a particular way by the presence of *Posidonia oceanica* (L.) Delile, 1813, habitat of Community interest. The proposal of the Plan of the Park to extend to the sea The Circeo National Park would help to protect and enhance areas for the most part already included in the Natura 2000 network that could be handled in a unified manner by the Park providing for their conservation through various management interventions. Another proposal involves, instead of creating a true marine protected area, encompassing the whole *Posidonia* meadows present both in the northern section of the coast and in the south, between San Felice and Terracina and, hopefully also the stretch of sea that surrounds the island of Zannone (therefore including the SPAs area regarding the Pontine Archipelago).

KEY WORDS

Circeo National Park; marine protected area; *Posidonia oceanica*; Natura 2000 Network.

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INTRODUCTION

The Circeo National Park, established by Law No. 285 of 25 January 1934 in order to "... protect and improve the flora and fauna, preserving the special geological formations and the beauty of the landscape and promote the development of tourism," after have suffered several perimetral changes over the years is now extended for a little less than 9000 ha., while protecting currently only a strip of land characterized by the presence of five different environmental situations that make up the rich mosaic that characterizes it: the plain forest, the promontory, the coastal dune, coastal lakes and the adjoining wetlands, the Island of Zannone part of Pontine Islands.

The importance and value of the protected area is especially evidenced by the layering of several legislative instruments at regional, national, Community and international level that protect the territory and biological forms and abiotic ones preserved in it.

Regulatory instruments at the regional, national, European and international level

Institution of the CNP with Law no. 285 of January 25, 1934

Institution of five natural reserves of the State (1971-1979)

Bonn Convention - conservation of migratory wildlife species

Berne Convention - Wildlife and conservation of the natural environment in Europe
 Ramsar Convention - conservation of wetlands of international interest (presence of 3 sites included)
 CITES - regulating international trade in endangered species of flora and fauna
 Directive 79/409/EEC (Directive 2009/147/EC "Birds Directive")
 "Habitats Directive" (92/43/EEC)
 Framework law on protected areas 394/91
 Act No 157 of 11 February 1992 (Omeoterma wildlife protection and hunting)
 Regional Law 18/88 (protection of minor fauna)
 Presence of 2 IBA sites (Birdlife International)
 SPA IT6040015 Parco Nazionale del Circeo
 SPA IT6040019 Isole di Ponza, Palmarola, Zannone, Ventotene e S. Stefano
 SCI IT6040013 Lago di Sabaudia
 SCI IT6040012 Laghi di Fogliano, Monaci, Caprolace e Pantani dell'Inferno
 SCI IT6040014 Foresta Demaniale del Circeo
 SCI IT6040016 Promontorio del Circeo (Quarto Caldo)
 SCI IT6040017 Promontorio del Circeo (Quarto Freddo)
 SCI IT6040018 Dune del Circeo
 SCI IT6040020 Isole di Palmarola e Zannone

The Circeo National Park includes 5 nature reserves established from 1971 to 1979. Among the international conventions ratified by our country that involve it directly, we can mention the Bonn Convention on the Conservation of Migratory Species of wildlife, the Berne Convention for the conservation of the natural environment in Europe and the wild species, the Ramsar Convention for wetlands of international value, the Washington Convention (CITES) for the regulation of international trade of endangered species of flora and fauna, the Habitats and Birds Directives, the framework law on protected areas 394/91, the law number 157 of 1992 for the protection of homeothermic wildlife from hunting, and even the regional law 18/88 for the protection of minor fauna. Finally, we must remember both the presence of two Important Bird Areas as well, with regard to Community

directives, the two SPAs and the seven SCIs that insist throughout the area going to generate a multi-layered system of protection at different levels both normative and territorial, which bear witness to the importance of these places. Nevertheless, thought it was the first, and for a long time the only coastal national park in Italy, the sea has always been regarded in second place in the environmental protection policy.

DISCUSSION

In spite of the attention has always been focused solely on terrestrial environments of the National Park of Circeo, of great importance is also the stretch of sea between Capo Circeo and the Pontine Islands. In this area were reported indeed marine mammals as bottlenose dolphin (*Tursiops truncatus* Montagu, 1821), striped dolphin (*Stenella coeruleoalba* Meyen, 1833), common dolphin (*Delphinus delphis* Linnaeus, 1758), sperm whale (*Physeter macrocephalus* Linnaeus, 1758), and *Globicephala* spp. while in recent years are occurring ever more frequent sightings (and strandings) of the sea turtle *Caretta caretta* Linnaeus, 1758.

In the sea in front of the National Park, it is also noted the presence of the following further species present in the annexes of the Habitats Directive (in general, some of the marine species listed in the "Report of the Italian fauna protected" written by the MATT, a document that lists protection status and health of every animal species and related legislation, are present along the coasts of Circeo):

Corallium rubrum Linnaeus, 1758. Red Coral, Habitats Directive, Annex V - reported presence at the site IT6040019

Pinna nobilis Linnaeus, 1758. Fin noble, Habitats Directive, Annex IV - Reported presence at the site IT6040020 and IT6000013

Scyllarides latus Latreille, 1802. Slipper Lobster, Habitats Directive, Annex V - Reported presence at the sites IT6040019 and IT6000013

Petromizon marinus Linnaeus, 1758. Sea lamprey, Habitats Directive, Annex II - Reported presence with a not very significant population at the site IT6040019

Aphanius fasciatus Valenciennes, 1821. Killfish, Habitats Directive, Annex II - Reported presence at the sites IT6040012 and IT6040013

The Lazio Region, within the programs Beachmed (Interreg) and ICZM (Integrated Coastal Zone Management), has produced two publications and analysis on the priorities for the conservation of coastal and marine natural values of the region (BEACHMED, 2004; DECOS, 2006; 2007). The coast of Circeo (particularly the area in front of Torre Astura, the area in front of the lakes and the one between Capo Circeo and Terracina) turns out to be one of the most interesting especially for the presence of *Posidonia*, which performs nursery function for fish and benthos. It should be recalled in this connection that the seagrass meadows are considered a priority habitat of interest at European level; in Italy, are further protected and secured since 2001 (Decree Law No. 93 of March 2001).

“La Sapienza” University of Rome has recently developed on behalf of the city of San Felice Circeo, a project for the knowledge and conservation of *Posidonia* meadows in the area of Circeo (Università degli studi di Roma “La Sapienza”, Regione Lazio, 2008; Nascetti & Martino, 2009). According to this work, the current distribution of grasslands appears to be profoundly changed compared to what is reported in the works described above. Between Capo Portiere and Torre Astura there is a compact *Posidonia* meadow, with a relatively high density and settled on “matte”, less compact due to the presence of large areas of erosion in slightly more depth and patches up to 31-32 m deep; some areas of this grassland show signs of an advanced state of regression while in others are present rock structures. *Posidonia* is present along the shoreline in front of Fogliano Lake, while it is absent between the headland and the mouth of Caprolace lake where it is present *Cymodocea nodosa* (Ucria) Asch., 1870 (Ardizzone & Belluscio, 1996; Diviacco et al., 2001)

The *Posidonia* meadow placed in front of the promontory of Circeo is what seems to be the least changed over the years, probably because localized further out than the others, and therefore less influenced by the contributions of continental waters, but also thanks to the presence of rocky substrates that probably have limited the activities of illegal trawling. In fact, the most western front of the Circeo promontory, has a meadow in good condition, settled on the rock in the middle part and on “matte” all around. A narrow zone with isolated bundles of *Posidonia* on dead “matte” is present in

the vicinity of the bottom margin (Bouchette et al., 2008; Ardizzone et al., 2009; Nascetti & Martino, 2009). The central meadow, between Cape Circeo and Terracina, presents the most important regression of this stretch, especially evident with the retreat of the lower limit. This stretch of coastline was subject to heavy changes in the coastline due to the increased human pressure, with negative influences on both the quality of water on the grain size of the seabed. Most of the area is therefore occupied by a meadow extremely rarefied with large areas of dead “matte” (Bouchette et al., 2008; Ardizzone et al., 2009; Nascetti & Martin, 2009).

Summing up therefore the expeditious visual analysis of environmental emergencies and major areas of interest of the Latium coasts, we can identify two major areas of interest in offshore and sub-coast. Among the areas of greatest interest for the establishment of Marine Protected areas there is the offshore area in front of the Circeo; among the inshore areas the stretch between Capo Circeo and Terracina is particularly interesting for its fertility due to its geological features.

The Plan of the Park proposes a widening in the sea of the National Park that would include as well an extraordinary variety of plant and animal species, protecting and enhancing the features of the marine and coastal biodiversity, also and above all through environmental restoration measures. For these reasons could be implemented programs of study, monitoring and scientific research in the fields of natural science and environmental protection, with the aim of ensuring the systematic knowledge of the area, but also for the promotion of sustainable development of the environment, with particular emphasis on promoting traditional activities of local cultures, tourism and environmentally friendly use.

The areas involved by the proposal for extension of the CNP to the sea are largely already included in the Natura 2000 Network. With this proposal, according to the editors, the management of the offshore part of the “SPA IT6040015 Parco Nazionale del Circeo” and marine SCI that face the sea coast of the Park and of Zannone (SPAs “Pontine Islands”) may be carried out in a unified manner by Park Authority that can ensure their preservation through various management interventions. This solution, also, would fully respond to international commitments in the European context for the

management of such sites, providing them with concrete organizational, and financial skills that would ensure the achievement of the objectives of the Birds and Habitats Directives. The proposal put forward at the time by Legambiente was, instead of setting up a real marine protected area, to include, rather, the entire complex of the seagrass meadows present both in the northern section of the coast and in the south (between San Felice and Terracina). Indeed, the marine area should not only encompass the entire SPA Circeo National Park, but we imagine that, facing if necessary with any reluctance of local municipalities, the park could also be a promoter of an extension of the area to the sea area surrounding the island of Zannone (therefore comprising part of the second SPA of the Park, the one concerning the archipelago of the Pontine Islands).

The ideal reference is to the “5 Terre National Park” where the synergy between marine protected area (institute aimed to the protection of marine environments) and the national park (which protects instead the ground part) has created an enviable model of resource management and, at the same time, of valorization of the tourist routes on which the socio-economic system of the district is largely based.

CONCLUSIONS

The coastal stretch in front of the National Park of Circeo between Capo Circeo and Terracina and between Astura and Capo Circeo, is one of the coastal areas of most interest throughout the region of Lazio in consideration of the presence of important *Posidonia oceanica* meadows. The importance of submerged marine vegetation, especially of the systems of marine phanerogams, was now scientifically recognized as crucial for their contribution to the maintenance of infralittoral ecosystems. This aspect suggests a priority in the preservation of the natural values of the coastal and marine areas.

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