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Analysis of the Natura 2000 Networks in Sweden and Spain



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Abstract

In this paper the main differences between Natura 2000 Network in Sweden and Spain are analyzed. Comparing different documents at different levels: European, national and regional, the author aims to understand which strategies have been taken in both countries regarding the implementation, management, funding and social reactions of Natura 2000 Network and verify whether in a common Europe the differences in the understanding of environmental common policy are decisive and define the implementation process. The results can clearly show that such differences occur in practically the total issues analyzed. Sweden could be characterized by its orderly and homogeneous implementation process with a close communication between public administration and stakeholders that have influenced all the process. As a result its Natura 2000 Network has marked differences on distribution and size in its Natura sites. Spain, however, shows a heterogeneous and complicated process characterized for both the disinformation due to the lack of communication with the stakeholders and controversial legislative measures which caused social reactions against this network. In contrast it seems that the criteria followed for the sites selection were less influenced by stakeholders. As a conclusion environmental Directives transpositions are being fulfilled with different criteria having as a result significant differences in their final objective.

Keywords: Natura 2000 Network, implementation, management, funding, social reactions, Sweden, Spain, SCI, SPA, protected natural areas, nature conservation, natural parks, mediterranean, boreal.

Objective

The desire to conserve nature has been present in a more or less indirect way throughout history. Today, when the damage of natural resources has become even more alarming, the topic has come under more serious consideration. Scientific, political, economical and social agents have seen the urgent need to preserve the natural environment. Given the state of the current global environmental problems, it might seem pointless to talk about single countries. Nonetheless, normally it is necessary to do it, because we cannot forget that the history of each individual country has been and still is an important part in defining the environment. In addition, most of the nature management and measurement data are available at a national scale, especially when we speak about historical data (Graf von Hardenberg & Armiero, 2009). Differences between the EU member states for managing their natural areas are evident; the EU environmental legislation recognizes the principle of subsidiarity; i.e. the member states design their own policies to reach the common objectives. The present study will compare the cases of Sweden and Spain. These countries have been selected because they can offer a good example of divergence within a common European policy. They will be compared in terms of implementation, management, financing and social acceptance regarding the Natura 2000 Network (NN)¹, cornerstone of the EU nature and biodiversity policy. The aim of this study will be to identify, analyze and explain the differences that may exist in both countries to have a better understanding of how the European environmental policy is fulfilling.

¹Although Natura 2000 Network is composed by terrestrial and marine zones, only terrestrial ones will be considered in the analysis, due to the important lack of information regarding the marine sites.

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Background

The evolution of the nature and nature conservation concept that has taken place throughout history with a predominantly European focus will be presented in the following, in order to provide a basis for better understanding of the current situation in relation to Protected Natural Areas, especially in the Natura 2000 network.

In this introduction first I will begin with a brief overview of the key events that occurred throughout history related to the nature conservation and the creation of protected nature areas and second, I will focus on the EU. Finally the meaning, characteristics and creation process of the Natura 2000 network will be presented.

The evolution of nature conservation

Environmental protection has a long history. As early as 430 B.C in Athens, tanning in the river Illis was forbidden to avoid possible contamination (Kwiatkowska, 2001). Also in ancient Greece, Plato wrote about water use and care (Plato, Laws, 360 B.C.), and discussed the critical state in Attica due to desertification in its mountains because of the wood and firewood consumption.

Until the Middle Ages and without taking into account the rationalist thoughts of the early philosophers, the animistic view of nature, which endowed with 'soul' and venerated any element from the environment, prevailed. In the Middle Ages with the influence of Christianity and the Church's power, nature began to be regarded as the product of a divine act, further evidence of God's power, turning from Nature worship to the worship of God (Barros, 2001). But besides the ideational development, changes in social order as well in agricultural technology, conveniently designated as the feudal system, caused a change of perspective where nature became an object to be modified; extensive tracts of new land were converting into farmland. The forest area was reduced to use it as farmland while at the same time the importance of forests increased as well. Forests provided new uses that joined the traditional one as a supplier of wood: noble use (hunting) and religious one (place of pilgrimage to shrines and monasteries) (Duby, 1968).

The transition from the Middle Ages to the Modern Age, with the rapid expansion of urban life enhanced the separation between nature and society, with the evolution from a peasant and submissive society with the decisions of nobles and Church, to Rationalism and Enlightenment, which paved the way to the industrial revolution, main actor of the most significant ecological restructuring throughout history (González, 1993). Francis Bacon's (d. 1626) action program for modern society; to establish *dominium hominis* (Man's domination) over nature became paradigmatic. The idea of indefinite progress and the unlimited natural resources caused the "greatest disaster" of all time regarding the conservation state of natural resources (Ramachandra Guha, M. Gadgil, 1993).

As we have seen, the model of human development has always relied on the use of natural resources as a means of subsistence, but it was not until the industrial revolution, when such use has exceeded the threshold of sustainability and threatened the viability of many human activities. As a result, in the late nineteenth century, an important Conservationist Movement began in the United States, of a strong romantic nationalist and religious character, marking the beginning of the current social concern for the environment. It is notable that the main problem which originated this movement was not the environmental impact of new industrial activities but for hygiene and the health problems they caused. For example in Europe the

Conservationist Movement started with the idea of promoting a better quality of life and preserving the already deteriorated and unhealthy urban environment of London, which had arisen as a consequence of the lack of conditioning in supply systems water and waste disposal (Ramos Gorostiza J. L., 2002).

Later on, the influence of a kind of Romantic Movement came and brought about the creation of environmental awareness. The romantic perception of nature as wild and mysterious space lead to the popularization of cultural phenomena such as hiking and mountaineering (Mora, 2008); paradigmatic was the Sierra Club in the United States.

This movement achieved new decisions both public and private, addressed to the nature conservation. Some examples of such decisions are early efforts to control the impact of pollution, the creation of natural parks, making legislation for the conservation of certain types of wildlife and the promotion of environmental education, key for environmental awareness. The need for future generations to have the opportunity to enjoy the natural resources was also discussed, the idea of sustainability raised indirectly (Ramos Gorostiza J. L., 2002).

European organizations that stood out in this period were the British National Trust, ornithological ones (especially in Great Britain, Germany and Holland) or the Swiss League for the Protection of Nature that held the first International Conference for the Conservation of Nature (Mora, 2008).

The Conservationist Movement was made up only by a small stratum of society: researchers, nature lovers and people from the highest social classes (Sosa, 1994). But after the Second World War diverse environmental initiatives took real strength and got broader popular support. The early initiatives, awareness of the disastrous consequences of pesticides (Rachel Carson's *Silent Spring* from 1962) and some natural disasters such as oil slicks made to broaden the awareness of society about the need to stop this situation (La revolución del medio ambiente).

As a result of the 70s was the era of the "explosion of ecological awareness" in Europe and America, generating a series of important documents, collective work sponsored by the world powers and conferences of international scope.

Table 1. The most relevant events from the era of the "explosion of ecological awareness" until nowadays

Years	Most relevant events
1968	Conference on the Conservation and Rational Use of the Biosphere, organized by UNESCO ² . The Program Man and Biosphere was created (MAB) ³ .
1972	Stockholm Conference, Organized by UN. The United Nations Environment Programme was created (UNEP) The Action Plan for the Human Environment was taken. ⁴
1980	World Conservation Strategy carried out by UICN, with collaboration of: UNEP, WWF, FAO, UNESCO ⁵
1987	<i>Our Common Future</i> (the 'Brundtland report') from the United Nations was the base for the Conference of Rio
1991	Second World Conservation Strategy: Caring for the Earth: A Strategy for Sustainable Living.
1992	Conference on Environment and Development, Rio de Janeiro, organized by UN.
2002	The Summit for Earth, Johannesburg, organized by UN.
2009	Millennium Summit, Copenhagen, organized by UN.

Source: own production.

The two World Conservation strategies listed in Table 1. built on two on two basic ideas fundamental as well to recent UN International Summits (Rio de Janeiro 1992, Johannesburg 2002 and Copenhagen 2009):

1. To be sustainable and viable from an intergenerational perspective the socio-economic development should be integrated into its objectives and methods the nature conservation.
2. The nature conservation has to be and can be compatible with economic development to assure those who live in the areas to protect, services in order to avoid they have to destruct natural resources around them to survive.

In short, the most important features that distinguish the beginning in nature conservation and the current moment are: the introduction of environmental and sustainability concerns into development.

Evolution of natural area protection

As we have previously noted, the social concern about nature conservation has increased at the same time that the processes of industrialization and urbanization increased. One of the fields into which environmental concern has been channeled, has been the protection of spaces with rare and exceptional natural value in order, firstly, to contribute to create conditions for

²The other four organizations that participated were: United Nations (UN), Food and Agriculture Organization of United Nations (FAO), World Health Organization (WHO), International Union for Conservation of Nature (IUCN).

³This interdisciplinary scientific research program was used to lay the groundwork for a rational use and conservation of the resources in the biosphere. At the same time, through improving the relationship between people and the environment (Schaaf, 1999).

⁴It affirms the need for common principles that give people around the world inspiration and guidance for preserving and enhancing the human environment (UNDP (United Nations Development Programme), 1972).

⁵This strategy leads to dialogue as the most effective way with promoters of human development providing advice in a local level and conservation services, especially in developing countries.

future generations and, secondly, to ensure the use and enjoyment by present ones with due respect and persistence of the protected values. Furthermore, the higher interest of society in conservation issues was accompanied by an increased interest by the public authorities, joining the list of topics to be discussed that are politically desirable as a source of social legitimacy of political power (Offe, 1990). In this sense, the role of government in the establishment of Protected Natural Areas has been decisive and there are those who have seen the creation of them as the result of a public offer without previous economic demand (Fabiani, 1985). In other words, the creation of Protected Natural Areas could be profitable from a political marketing perspective (Urruela, 2001).

The criteria and objectives in the protection of natural areas has have evolved from a static and aesthetics protection to a dynamic one. From "beauty" and isolated protected areas where the interests and demands of local people were not taken into account to a dynamic, global and interconnected natural areas with a sustainable use of the natural resources. This change came up, in part, because of the resistance of rural people to this system purely naturalistic (Rodríguez, 1975), (Ortuño, 1982), (Urruela, 2001).

Below it is possible to compare the main characteristics and protection practices in early and current protected areas.

Table 2. Early protected areas VS Current protected areas

Protected natural areas in the beginnings	Protected natural areas nowadays
Natural Sanctuary	Integrated in an opened system
Protection	Conservation and sustainable development
Static	Dynamic
Centralized Management	Decentralized management: local area
Regulation	Integral planning
Isolated Management	Coordination and cooperation
Elitist	Social participation
Reaction against development	Development Integration
Small size and limited	Wide surface, with transition zones.
Objectives opposed to development	Convergence of aims): Compatibility
Exclude other sectors	Complementary

Source: (Tolón & Lastra, 2008)

In this evolution process many actors, from many different origins and levels and with many different points of view and needs have been involved, but finally it has been more widely accepted that the Protected Natural Areas should meet a set of goals that can be grouped into five categories (Tolón & Ramírez, El Parque Natural de Sierra María Los Vélez Almería, 2001):

- Protection and preservation of cultural and biophysical environment.
- Scientific and research.
- Educational.
- Recreational.
- Socioeconomic.

The main aspects in this transition can be found below.

Table 3. Significant events in Protected Natural Areas (PNA) evolution

	1 st Period (1872-1975)	2 nd Period (1975-1992)	3 rd Period (Current)
Most remarkable aspect	Establishment and consolidation	Growth and development of PNA	Linkage to sustainable development.
Conception & policy approach	Elitist and static (Natural Sanctuaries)	Isolated and closed policies	-Opening of policy: interaction with other sectors. -Integration in global policy: conservation and sustainable development.
Purpose	Protection and recreation	Protection, conservation, scientific, cultural, educational and socioeconomic	Strengthening of the aim of environmental education
Protected area	Low	Spectacular growth in spaces number and protected surface	Moderate growth, or stabilized.
Protection categories	Few categories: predominance of the National Park	Proliferation of categories: typological confusion	Tendency to simplify and unify categories 6
NPA Network	Almost nonexistent	Creation and development of the first networks	Growth and strengthening of regional, national and international networks
International organizations and organisms	Establishment of first organizations: UICN, WWF...	Increase of number of countries subscribing	Strengthening of the role of organizations
Instruments used for compliance purposes.	Prevalence of legal instruments.	Development of management planning.	New instruments: inventories, indicators, models of economic development ...

Source: (Tolón & Lastra, 2008)

⁶One result of the enormous proliferation of Protected Natural Areas was the great diversity of definitions and classifications for different types of protected areas, as an example in 1980, IUCN got thirty different categories of protection, and hence the need to develop a classification more or less universal was very important. This was carried out at the XIX General Assembly of IUCN (Buenos Aires, 1994) adopting a resolution classifying protected areas into six categories according to type of management. These were:

CATEGORÍA	DEFINICIÓN SUGÚN LA UICN
I Nature Reserve	
Ia: Strict Nature Reserve	Protected area managed mainly for science
Ib: Wilderness Area	Protected area managed mainly for wilderness protection
II: National Park	Protected area managed mainly for ecosystem protection and recreation
III: Natural Monument	Protected area managed mainly for conservation of specific natural features
IV: Habitat/Species Management Area	Protected area managed mainly for conservation through management intervention
V: Protected Landscape/Seascape	Protected area managed mainly for landscape/seascape conservation and recreation
V: Managed Resource Protected Area	Protected area managed mainly for the sustainable use of natural ecosystems

Source: (IUCN, 1994)

Protected Natural Areas within European Union

Nature conservation, as all aspects of environmental protection cannot be discussed from isolated national perspectives only. It affects all European Union citizens equally. Migrating birds do not know borders, many important habitat across national borders, such as alpine regions or the coastal belts, when pollution goes into the river; it travels downstream through other States. For this reason, mandatory measures taken at European level are necessary for effective conservation of natural resources (EU, 2004)

In Europe, the beginnings of environmental consideration were reflected in urban planning (congress on urban planning, Amsterdam 1924) with the incursion of parks and gardens as an outdoor recreation zones and later in regional planning where the importance of the relation between urban areas and outdoor recreation in natural areas was emphasized. The examples in American conservation policy, such as the development of green-corridors, and the connection of urban parks with countryside areas for both recreation and nature conservation, adapted well to European context. (Van der Valk, 1982).

When European Coal and Steel Community was established (1951), its intention was to develop these sectors rather than the environmental impact assessment. But in the seventies the global public opinion began to focus on the important damages that our modern lifestyle had on natural resources. Thus, in the Paris summit of 1972, the protection of the environment was taken into account becoming priority; as a result the first community action program was set up. Such program laid the foundations for the first EU law aimed to preserving the natural environment for ourselves and for future generations: "Birds Directive" (1979) (European Comission, El esfuerzo de la UE en materia de protección de la naturaleza, 2002).

The aim of this directive was to protect, manage and regulate all wild bird species that normally live in the European territory of the member states and regulate the exploitation of these species. In addition, members have the obligation to keep the most suitable territories in number and size sufficient to guarantee their survival. These areas are called Special Protection Areas for Birds (SPA) (European Comission, Europa, 2008). The other important law regarding nature conservation is the Habitat Directive (1992) which aims to protect wildlife and their habitat.

EU was aware that the implementation of those Directives had to have the local people cooperating; hence, Community legislation regarding environmental issues respected the principle of subsidiarity, and left the national or local authorities the management of their programs whenever possible. This way the EU role would be to support and coordinate the various initiatives and ensure that governments are keeping their obligations. So it is responsibility for member states identifying areas of conservation and establishes management plans that combine long-term conservation with economic and social activities in order to establish a sustainable development strategy. The Natura 2000 network is the cornerstone of the policy of nature protection in the EU, and builds on these two directives, SPA and the Habitats Directive.

Protected Natural Areas in Spain

The evolution that Spain has had in terms of nature conservation can be summarized in several stages.

The first period in the early twentieth century pointed in the same direction as the rest of Europe and the United States: the Romantic Movement and the establishment of the first national parks.

The second period started with the advent of the dictatorship and just after the civil war, a setback in conservation policies was experienced, probably because the problems in this period made impossible to consider environmental issues as a “real” problem. An example of this period was the lack of newly created National Parks, only some spaces with less category were created and with less restrictive laws. Moreover, coming to forested lands, nature conservation was understood only under a forestry point of view, i.e. forest was considered “something” to exploit, without taking into account conservation.

The third period was marked by the international environmental movement, which coincided with the final and weaker period of the dictatorship. Spain tried to find recognition by European neighbors. As a result effective actions and real changes in attitude toward nature and its management were achieved (Ramos Gorostiza J. L., 2006).

The last period was influenced firstly by the Constitution establishment and the transfer of competences to the Autonomous Communities (regional administrative divisions). This transfer of powers led to a proliferation of protected areas and an overkill of protection categories. Secondly the EU guidelines on environmental matters led to the creation of protected areas through the Birds and Habitats Directives whose ultimate goal is the creation of a natural network makes up by Protected Natural Areas across the European Union (Natura 2000 network). The most important facts are shown in Table 4.

Table 4. Most important facts related to conservation of protected areas in Spain

Year	*	Significant events
1901	1	New legal concepts: Catalog of public forests (<i>Montes de utilidad pública</i>)
1916		-Specific law for the National Parks (eminently aesthetic landscape). -The management had a secondary role due to lack of budgetary funds, and was finally abandoned (Urruela, 2001)
1918		Creation of the first National Park
1927		Establishing criteria for the creation of categories with less protection range.
1916-1936		2 National Parks and 16 protected areas with less protection range were created.
1939-1959	2	Only 3 National Parks and 1 area with less protection range were created.
1957		Forestry Law (repeal the Natural Parks law of 1916)
1971	3	ICONA (Nature Conservation Institute) was set up
1975		Specific law of Protected Natural Areas: Four categories of protection were established

1976	4 Law regulating the Land and Town Planning, enabled the connection of economic planning and regional planning with the protection of the environment.
1978	- Adoption of the Constitution: everyone has the right to enjoy an appropriate environment and set environmental crime. -Transfer of State powers to the Autonomous Communities: there was a significant increase in declarations of Protected Natural Areas (in 1980 there were only 28 areas and in 1987, 171).
1989	-New Law of Conservation of Natural Areas and Wildlife: adapted to the new constitutional situation and the new international conservation criteria: four new figures of protection: Parks, Nature Reserves, Natural Monuments and Protected Landscapes ⁷ . -Setting up of Plans for Natural Resource Management (PORN) -Deroga la ley de espacios Naturales protegidos de 1975.
1989-1996	11 Autonomous Communities expand its legislation to incorporate new specific laws on nature protection.
1994	The protected areas amounted to 465 with up to 40 different protection categories! (Because the Autonomous Communities had the legislative capacity to create more than the four established in the Law of Conservation of Natural Areas).
1997	The National Parks no longer managed by the State, but by Autonomous Communities.
2002	The existing network of National Parks (12 in total) is finished.
2003	New forestry law.
2007	Natural Heritage and Biodiversity Act which replaces the 4 / 1989

Source: own production. *Periods

Protected Natural Areas in Sweden

The relatively low population density compared with other European countries and the public right of access to all natural land, reduced the human pressure in natural areas and were advantageous to the development of environmental protection work (Larsson, 1977).

Even though, throughout history some agents were responsible of a slow deforestation in some parts of Sweden: mining industry, fuelwood, charcoal for smelting, raw material for iron production and ship-building, agriculture, etc, but all those activities were not need an intensive silviculture making it less urgent to protect forest areas. In recent times, by the end of the nineteenth century, timber and pulp-paper industry cause high forest depletion in some areas, so that in 1903 the first forestry act was set up (Farmers, The Royal Swedish Academy, Swedish University of Agricultural Sciences, Skogsindustrierna, Skogsstyrelsen, & The Royal Swedish Academy of Agriculture and Forest, 2009). The main goal was avoid the deforestation through reforestation measures. It should be noted that the landscape in many areas (especially in Southern Sweden) was completely different than it is today, open land and farmland rather than thick coniferous forests (FAO, 2000).

⁷Law 4 / 1989 tried to clarify, the confused situation with regard to protected areas, however, since the Autonomous Communities, and some local authorities have the powers to declare, planning and management of protected areas they were developing laws adapted to their own characteristics. The result was the emergence of too many different categories of protected areas, some of which are difficult to fit both the national four figures and the six described by the IUCN (Troitiño, et al., 2005). The differences between them are the degrees of protection. The national park has a comprehensive protection has ecological, scientific and aesthetic values of the first order. The protection extends to the vicinity, which is known as pre-park. Nature reserves protecting diverse ecosystems of the actions that can lead to a worsening. Natural monuments protect several unique places of interventions that modify them. And finally the protected landscapes are places particularly remarkable for its aesthetic values, protection of interventions in the landscape.

In parallel, the Conservationist Movement influence in USA had as a result that Sweden was pioneer in protection of natural resources with the establishment of the Nature Conservation Act in 1909 and the first National Park in Europe.. Later on, in 1967, the Swedish Environmental Protection Agency (SEPA) was set up.

Since 1993 conservation and production objectives were considered with equal importance in the forestry act. Some forest companies began to take their own initiatives to preserve biodiversity. In 1999, fifteen environmental laws were merged into the Environmental Code (*Miljöbalk*) with the aim of achieving a good and healthy environment for the present and future generations through sustainable development (Swedish Ministry of the Environment, 2005). The most important events up to nowadays be enounced in the table below.

Table 5. Significant events on Swedish environmental History

Years	*	Significant events. Sources <u>1</u>, <u>2</u>, <u>3</u>
1909	1	Sweden's first nature protection law adopted: Sweden's and Europe's first nine national parks.
1918-1962		7 more parks were established.
1965		New nature conservation legislation (The means to establish the four categories of protection: national parks, nature reserves, wildlife sanctuaries, natural monuments, and landscape management areas were provided).
1967		Swedish Environmental Protection Agency is established (it will manage the National Parks)
1972	2	-Guidelines governing the future management of natural resources indicated that an ecological view should be applied in the different programs of practical planning at a national, regional and local level throughout the country ⁸ . -Simultaneously, a series of legislative measures were undertaken.
1975		Changes in the Nature Conservancy Act and the Forestry Act ⁹ .
1982-2009	3	13more parks were established
1995		Swedish joining to European Union. (Birds and Habitats Directives took effect)
1999		New Environmental legislation: The Swedish Environmental Code (Forestry = Conservation).
2008		-New National Parks Plan ¹⁰ . -Swedish nature conservation is becoming increasingly decentralized. Many decisions are taken regionally and locally, whereas central agencies develop nature conservation strategies and methods.
2009-2013		Currently 29 national parks in Sweden and six new will be established.

Source: own production.

*Periods.

⁸At the regional level the County Administrations are responsible for matters concerning nature conservation. In many cases the National Environment Protection Board (NEPB) acts as an advisory and supervisory body, whereas the County Administrations have executive responsibility and make decisions in a number of matters relating to environmental protection.

⁹They were made after a strong debate about clear-felling, fertilization, draining, soil scarification and the use of herbicides as a result of the economic considerations that forced the forestry sector.
Furthermore, it was possible to set aside landscape management areas, providing a less restrictive form of protection.

¹⁰The National Parks Plan is an important strategic document. The plan proposes new areas for national parks based on the degree to which they are worthy of protection, their size, representativeness, biodiversity and pristine qualities.

Natura 2000 Network

As noted above in the section: Protected Natural Areas within European Union, Natura 2000 Network (NN) is the cornerstone of EU environmental policy. It is ruled by two Directives: Birds Directive (1972) adopted with the aim of preserving all the European wild bird species in a long-term and Habitats Directive (1992) to protect the most threatened habitat and species throughout European Union. The network is made up by Special Protection Areas for Birds (SPAs) under Bird Directive and Special Areas of Conservation (SACs) for other species and habitat under Habitats Directive. Each member state that has to create a list of habitat and species listed in the Habitat and the Birds Directives (such species and habitat have community interest and are used as the indicators in order to select the areas¹¹). The fact that a habitat is cited in the directive does not mean that all the territories in which appear should be classified as protected areas, but just a sufficient area to ensure its conservation at the European level has to be protected (Rabadán & Suárez, 2008). For example, the taiga is a habitat covered by the Directive. But this does not mean all European taiga has to be included in the Natura 2000 network. Whether a particular taiga is selected to be part of the Natura 2000 network will depend on factors and criteria defined in the Directive¹², as well as the conservation state of such habitat at the European level, their value to accommodate the species listed in the Annexes the directive, etc).

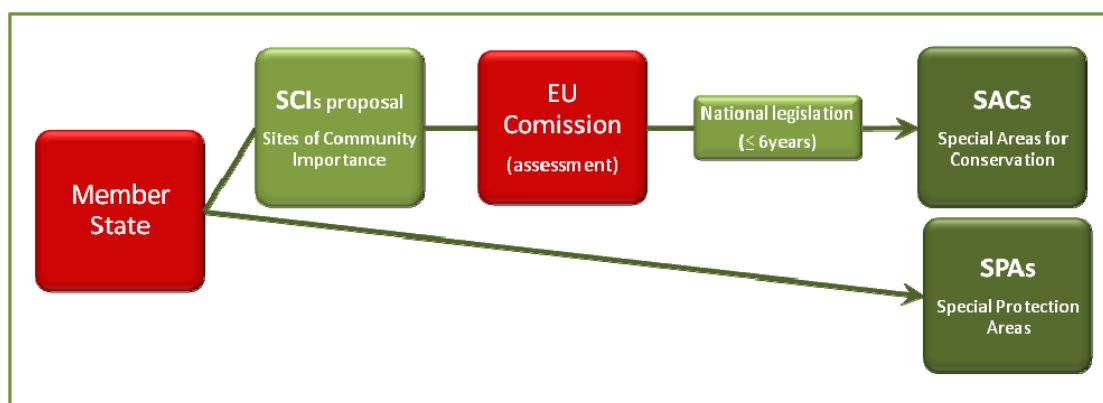
There are two big differences between SPAs and SACs: SACs are depending on the biogeographic regions, and its designation takes place in two stages: first the EU member states identify proposed Sites of Community Importance (SCIs) for inclusion in the Natura 2000 network and submit them to the European Commission, afterward the sites are assessed at EU level. The SCIs is then drawn up by the EU Commission together with the member states¹³. Therefore in the end there is an assessment at national level in stage one and an assessment at EU level in stage two. The two assessments give the selection of the most suitable sites for inclusion in the list of Sites of Community Importance. Once the lists are complete, the member states are required to comply with the provisions of national legislation to place their respective sites under protection as Special Areas of Conservation (SACs) within a period of six years, meanwhile in these spaces a series of preventive measures will be set to avoid deterioration¹⁴. Nevertheless SPAs since they are approved by the member state then automatically take part in Natura 2000 network (UE Comission, 2002) (Fig. 1)

¹¹The list of species and habitats are included in Annex I of the Birds Directive and Annexes I and II of the Habitats Directive.

¹²In Articles 3 and 4 and Annex III of the Habitats Directive sets out a number of criteria for the nomination and selection of SCIs covering characteristics of each place, and the habitats and species.

¹³Article 4 (2) of the Habitats Directive.

¹⁴Article 6 (2) of the Habitats Directive.



Source: own production

Fig. 1. Natura 2000 network organization chart.

In order to have a certain control over the protected areas under Natura 2000 network, the article 17 of Habitats Directive states that all member states might draw up reports each six years in order to check the implementation of the Directive. Such reports will contain information about the measures taken and their impact on conservation of the habitat types of Annex I and species in Annex II. After receiving all the reports, the European Commission will draw up a “composite report” (in the next two years) containing the evaluation for the achievements.

As we have seen above to define the spaces under the Natura 2000 network does not take into account the social and economic circumstances in the area (or at least it should be like that), but merely its importance under a scientific point of view. But this model of management does not intend to make only a catalog of spaces considered valuable from a natural point of view and creating walls and barriers around them. The habitat and species conservation requires an integrated land management that includes humans and their activities as a factor influencing the natural system (Rabadán & Suárez, 2008). Therefore, the Natura 2000 network should take into account the population and its social and economic circumstances in deciding what management measures are being implemented into the area in order that can be combined social needs and natural protection¹⁵.

Each member state is responsible for the management and funding which support the conservation of proposed zones in its country¹⁶. As regards the marine environment, where management activities may involve the regulation of fishing activities, the management would benefit from measures at Community level. When designing the European funds for the 2007-2013 financial perspective, it was agreed, after lengthy discussions, the best thing was the so-called “integration option”, i.e. that the financing of Natura 2000 was integrated and, therefore made from all European funds, not only from one. This will ensure that the Natura 2000 management will be part of broader policies for managing EU territories (Rabadán & Suárez, 2008).

¹⁵ Article 6 of the Habitats Directive considered globally, reflects the need to favor biodiversity at ‘favorable conservation status’ by keeping and restoring habitats and species through proactive, preventive and procedural requirements and taking into account economic, social, cultural and regional requirements, as a means to achieve sustainable development. This article has connections with Birds Directive as well.

¹⁶ Member States shall take the necessary measures to establish a system of strict protection of animal species (article 12) and plants (article 13) contained in the appropriate annexes, in its natural range and bring into force the laws, regulations and administrative provisions necessary to comply with this Directive (art. 23).

The European Commission has promoted the development of management plans enabling the co-financing of some measures that are required for the network development and management, under the existing Community instruments (article 8), some examples are LIFE "Nature and structural funds and agri-environment Such as European Agricultural Fund for Rural Development (EAFRD) (European Comission, 2002)

This European project has an enormous importance and ambition, unique in the world to safeguard natural resources. It is not intended to stay only in a declaration of intent by suggesting real measures to the different states member. In this sense the fact that each single member state manages and selects the protected areas could create some differences between member states. The differences in terms of network implementation, management, funding and social acceptance that may have been created between countries like Sweden and Spain are the object of study.

Materials and Methods

The present study is based on literature as described below, as well as conversations with Swedish professionals working with Natura 2000 issues.

A selection of official documents from the European Commission and in international conventions (Directives, Regulations and Commission Communications) have been utilized to depict the global situation and the framework of this study as well as to go deeply into the formal aspects before focus to detailed Natura 2000 analysis. The Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC) are the starting point from which is created Natura 2000 and, therefore, the basis for understanding the process. I have also resorted to documents published by the European Commission such as handbooks and guidance documents to interpret or expand the contents of the directives, as well as statistical data bases. On the other hand legal texts have been handled for the Spanish case on two levels:

- National level, Law 4 / 89 Conservation of Nature and the Royal Decrees: 1997/1995 and 1193/1998 about measures to contribute towards ensuring biodiversity.
- Regional legislation related to nature conservation and especially legal texts with references to Natura 2000.

Regarding the Swedish situation, the Swedish Environmental Code, cornerstone for the Natura 2000 legislation has been utilized, as well as other literature, mainly scientific articles, reports and assessments written by non-governmental organizations, conference proceedings, web sites, handbooks and books have been used and obtained mainly through Internet and loaned to the SLU Library in Uppsala, as well as handed by the supervisors. Ms. Anna Lindhagen at the Swedish Environmental Protection Agency, responsible for Natura 2000 administration, has confirmed the bias of Swedish published material in favour of conservational issues, leaving out statistics and studies on funding, management and social acceptance.

To analyze the Natura 2000 network country wise results I have divided my findings into in five main sections:

- General overview: some general ideas about the countries and their Natura sites will be highlighted.
- The establishment network process: the implementation of the European directives, the structure of competences and the jurisdictional status will be dealt.
- Natura 2000 network management: management plans and other initiatives will be presented.
- Natura 2000 network financing: figures and the more suitable funds will be discussed.
- Natura 2000 network integration in society: social reactions will be explained.
- Findings from the two countries will be described pair-wise in each section, in order to make to the lecturer an easier the comparison between the two cases.

Results

General overview

The selection of NATURA 2000 sites is based exclusively on scientific criteria (or at least it should be), such as size and density of populations of target species and the ecological quality and area of target habitat types. Natura 2000 sites are selected according to each biogeographical region¹⁷. Working on this level makes it easier to conserve species and habitat types under similar natural conditions across a suite of countries.

Given the above, the biogeographical characteristics that are contained in a country will be what largely determines their contribution into this network, and will be object of study for selecting the most suitable areas for conservation.

General overview of Spain

Spain, with 504,782 km², is the second largest country in the EU. Obviously such a large country should include more area than a smaller country in Natura 2000 network.

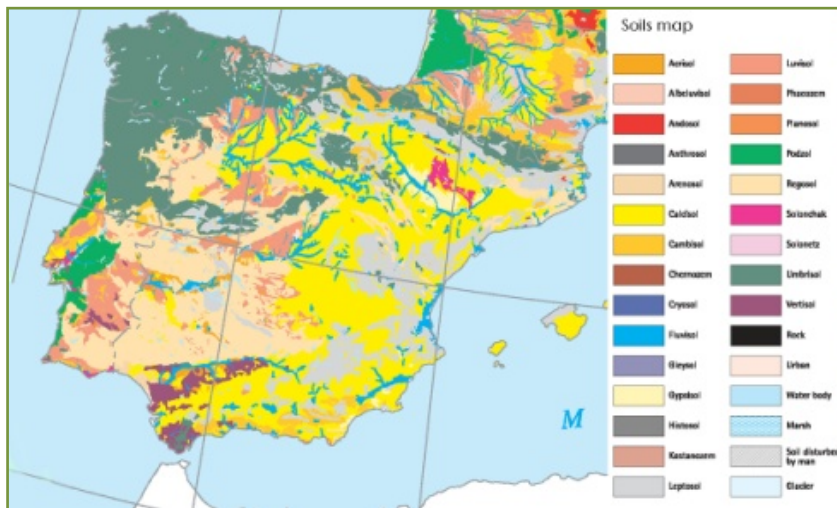
It is also one of the EU countries with greatest biodiversity of habitat and flora and fauna taxons. This richness is due to a complex biogeographic history, its location between two continents and two seas, the heterogeneous nature of its soil, the rugged terrain of the whole of its territory and a long and intense history of land use by the man has shaped the current landscape (González Bernáldez, 1991), (VV.AA, 2009) (Fig 2,3).



Source: Wikipedia, 2010

Fig. 2. Spanish relief characterization.

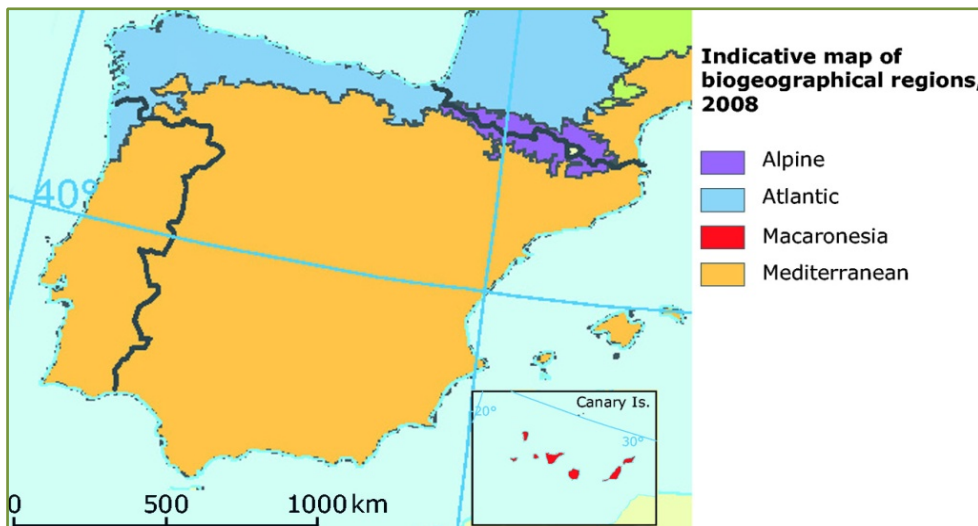
¹⁷Biogeographical region is the work unit that the European Commission uses regarding: data reception and evaluation of national lists of places of States Members. Note: The areas under the Birds Directive are not under the classification of the biogeographical regions



Source: European Commission – Institute for Environment and Sustainability.

Fig. 3. Soil distribution.

A good example to illustrate this diversity is found by the presence and distribution of the 'natural habitat types of Community interest' designated by the European Commission and belonging to four of the nine biogeographical regions present in the European Union (Fig.4). Due to all these characteristics, Spain has significantly high percentages of species and habitat contained in the Annexes of the Habitat and Birds Directives (almost 60% of habitat (116) and about 40% of species of flora and fauna), providing the largest expanse of territory to the Natura 2000 network (Fig.4 and 5).



Source: European Environmental Agency

Fig. 4. Biogeographical regions.

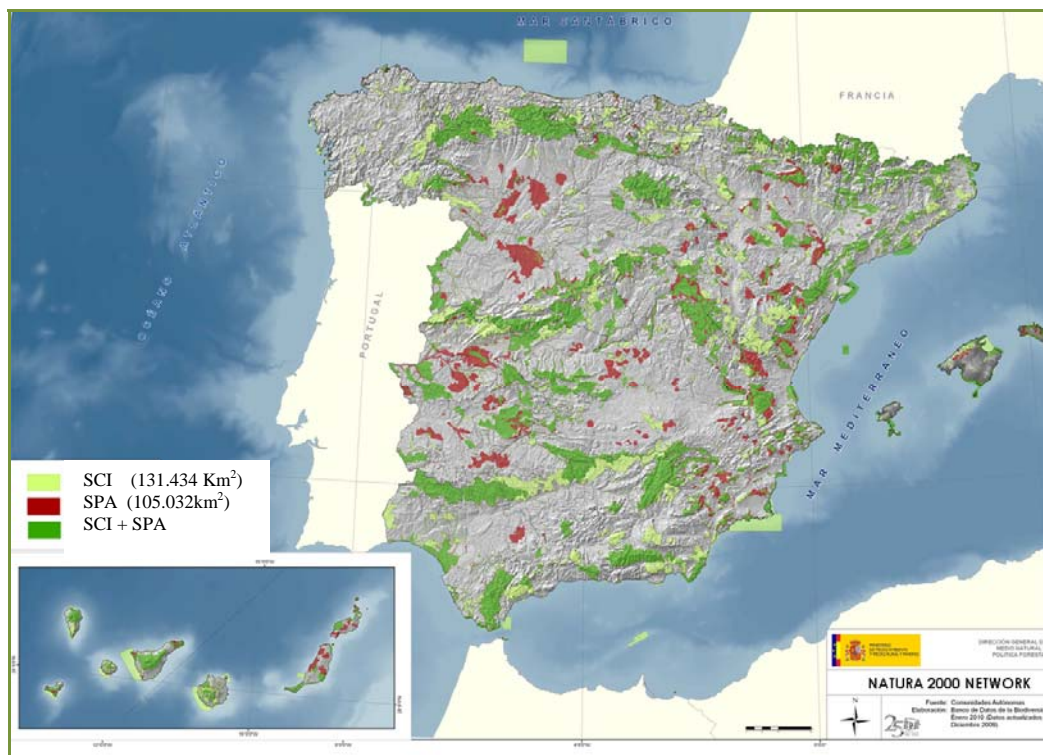
Table 6. Natura 2000 Network surface in Spain

Terrestrial			
	Total Area (km²)	Natura 2000 (km²)	Natura 2000 (%)
Spain	504.782	144.697	28,7
EU27	4.290.148	754.710	17,6

All			
	Num. of sites	Total Natura 2000 area (km²)	Contribution In EU %
Spain	1.774	155.064	16,8
EU27	25.828	922.271	100,0

Data of December 2009 provided by MS

Source: Own production based on European Commission data.



Source: Ministry of the Environment and Rural and Marine Affairs. Data of December 2009.

Fig. 5. Natura 2000 Network in Spain.

After a quick glance at the map, it is possible to say that as a general rule:

- Similar total surface in both SCI and SPA contribution (a bit higher SCI one).
- SCIs sites often overlap with SPAs and are mainly located in the main mountain ranges of the Iberian Peninsula.
- SPA sites are also represented in the broad plateaus (these zones are characterized by no intensive dry farming of cereals, with high importance for some bird species)).

Despite being from the beginning the country with the highest net contribution to Nature 2000 Network, regarding the Birds Directive fulfillment and the creation of the SPAs network, it got anyhow remarks for insufficient number of SPA reported in the first progress review. As a result nowadays more SPAs areas are added to the Natura 2000 network.

As for SCI areas, all that have been proposed have been approved by the Commission. Therefore, a new stage is beginning nowadays: the SACs will be declared and the management measures have just started¹⁸.

General overview of Sweden

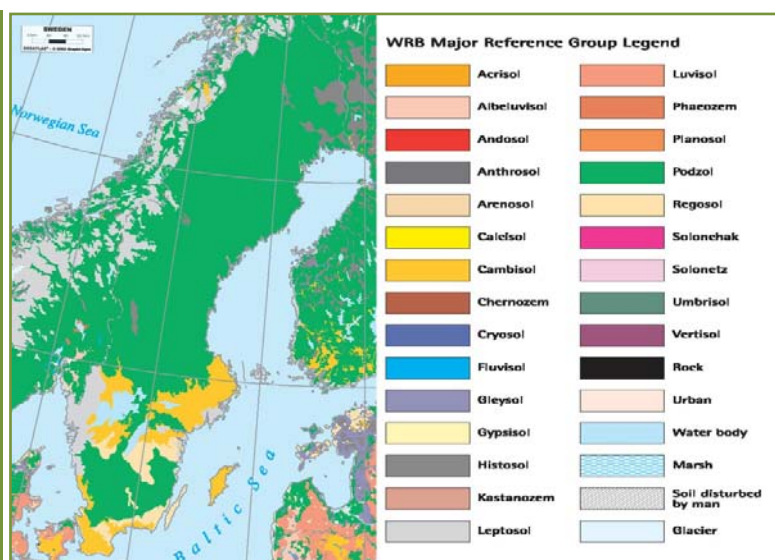
Sweden is a large country with an area of 450,295 km², similarly to Spain.

Even if the physical geography differs notably from the South to the North, it is possible to say that the land is predominantly flat (taking part of the Fennoscandian plateau, product of the recent Quaternary glaciations) with gently rolling hills. There is an exception of the north-western part (natural border with Norway) which is dominated by mountains (highest: Kebnekaise 2104 m) (Swedish Institute, 2006). Also, Sweden is characterized by the relative uniformity of its soil (with the exception of the southern parts): dominated by materials deposited directly by glaciers (tills) on the typical of cold and wet climates soils (podzol), shifting in Southern Sweden towards lime-rich areas that form the brown earth, with a good humus content and suitable for agriculture. These characteristics make that the boreal biomes have lower biodiversity with lower species richness (Millennium Ecosystem Assessment, 2005).

According to the EU classification, the country includes three biogeographical regions: continental, alpine and boreal. Yet, the 'boreal' classification is split into two in the country: a northern one being part of the circumpolar taiga region, poor in broadleaf species, and a southern one, named boreonemoral, characterized by admixture of broadleaf species such as oak, beech, maple, elm, ash and hazel, and notably more species rich than the taiga. (Fig 8). Regarding the 'natural habitat types of Community interest' designated by the European Commission, about 46% are present on Swedish territory (Fig 6, 7, 8).



Source: Wikipedia.



Source: European Commission – Institute for Environment and Sustainability

Fig. 6. Relief.

Fig. 7. Soil distribution.

¹⁸ Actually, there is a long delay in the designation of sites SACs, only 5 spaces have been approved. In late 2009 should have been approved SACs of the Alpine region, at the end of 2010 should be those of the Atlantic region and in 2012 those of the Macaronesian region.

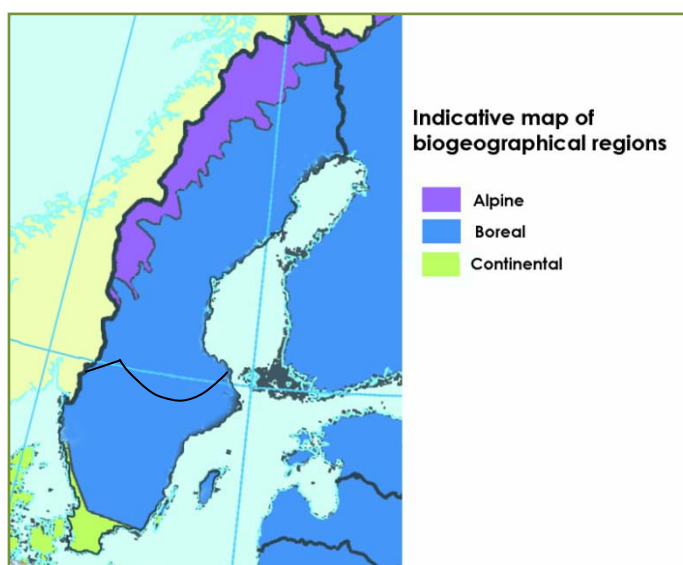


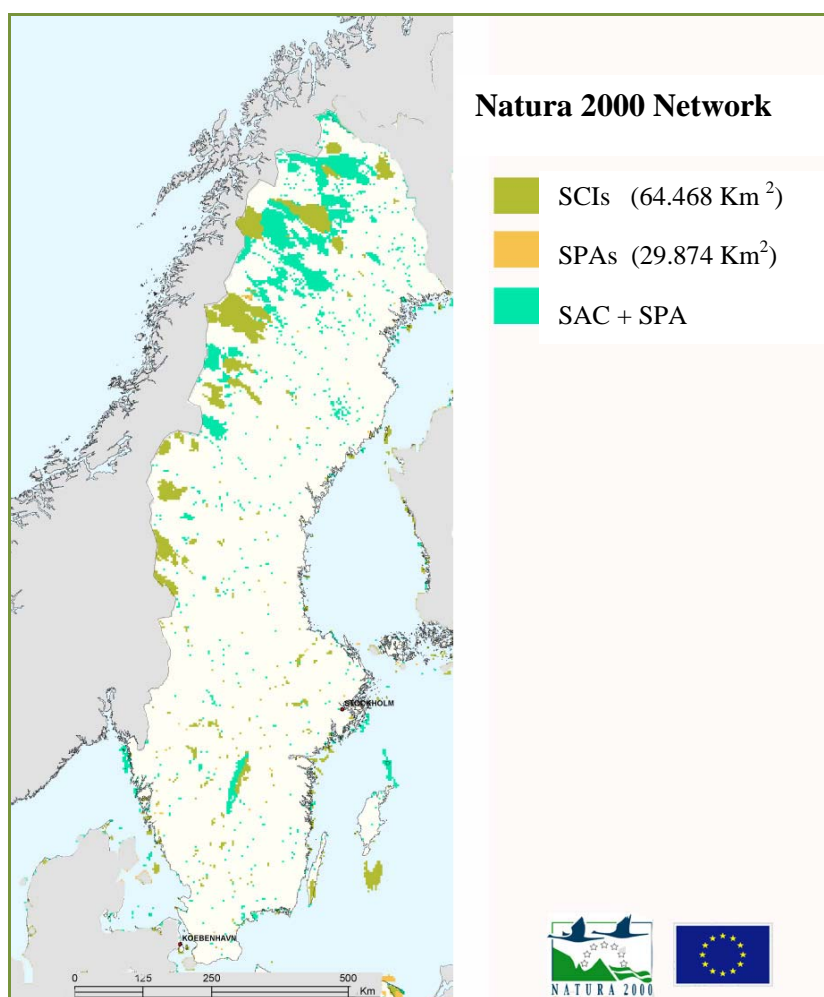
Fig. 8. Biogeographical regions.

All these characteristics have made it the fifth country in contribution to the network within the European Union. Some data can be found in Table 7.

Table 7. Natura 2000 Network surface in Sweden

Terrestrial				All			
	Total Area (km ²)	Natura 2000 (km ²)	Natura 2000 (%)		Num. of sites	Total Natura 2000 area (km ²)	Contribution In EU %
Sweden	414.864	57.133	13,8	Sweden	4.071	64.989	7,04
EU27	4.290.148	754.710	17,6	EU27	25.828	922.271	100,0

Own production based on European Commission data. Data of December 2009 provided by MS



Source: NATURA 2000 - DG ENVI, compiled from databases from the Member States.
Data of December 2009

Fig. 9. Natura 2000 Network in Sweden.

After a quick glance at the map, it is possible to say that as a general rule:

- SCI sites are wider than the SPA ones.
- There are significant differences in the size of Natura 2000 sites: the biggest ones are mainly located in the main mountain range. There is a big amount of sites with very small area spread over the center and southern Sweden in a predominant flat terrain, reflecting the mosaic character of the landscape.

The establishment network process

The process for the designation of sites was delayed in most of the countries basically due to a lack of scientific data and a general lack of political willingness¹⁹.

According to the results of the WWF report from 2006, most member states correctly transposed the Directives, although some of them showed some flaws. Germany, for example,

¹⁹Still today there is a long delay in the designation of sites ZEC, only 5 spaces have been approved. In late 2009 should have been approved SACs of the Alpine region at the end of 2010 should be those of the Atlantic region and in 2012 the Macaronesian region.

scored positive, even though European Justice Court judged (2002) it to be insufficient in its implementation of the Habitats Directive, having established a general exception for the use of the land if habitat or species are not damaged intentionally. Czech Republic, Italy, Finland and Portugal got the worst rankings.

Establishment in Spain

The implementation of the Habitat and Birds directives contents for the Natura 2000 network establishment affected different territorial levels. At the European level detailed rules and requirements that would be incorporated and applied in the national level by individual EU member countries. At this level in the case of Spain, specific actions are fulfilled at the regional level, and for that reason, to analyze relevant aspects of the process is necessary to approach the regional scale.

The legal status of Spain in the implementation of the Nature Directives (Birds and Habitat) is quite complex²⁰, on the one hand, Spain is an EU member state and therefore, the central government is responsible towards the Union for defining Natura 2000 sites and develop their management according to the goals came from the Directive. On the other hand, the Autonomous Communities have the actual responsibility for environmental protection, so that they are responsible for the areas proposal to be part of Natura 2000 and its management. The central government retains the role of coordinator between the different Autonomous Communities and the European Commission in preparing and sending lists. For that purpose a State Commission for National Heritage and Biodiversity was created as a consulting and cooperation entity between the State and the Autonomous Communities.

The lack of specific guidelines from the EU, the structure of competences existing in Spain, the great diversity of natural resources present in the Spanish territories and the different availability of technical resources and materials in each Autonomous Communities have determined how to deal with the formation of Natura 2000 network. There is not a unique methodology of implementation within the regional administrations (Herrero Corral, 2008). As a result the working methodology for the lists of sites followed different models according to the different regions. Many places came from the existing network of Protected Natural Areas (PNA) and therefore studies and maps were already done. For the other zones, in general, the Autonomous Communities defined areas of high ecological value on maps, or areas with presence of species or habitat of limited distribution using aerial photography, photo interpretation and field work to further digitize these perimeters. (The Ministry of Environment and Rural and Marine Affairs,, 2005).

SPAs implementation

The implementation of the proposed SPA, followed the same trend as in the rest of the member states, i.e. a long delay in the designation of areas. Thus, after a first effort of many Autonomous Communities, there was a break during the 90s (A distrust of some administrative departments,

²⁰Spain is a country formally unitary but which functions as a decentralized federation of Autonomous Communities, each with different levels of self-government.

The differences within this system are due to the power transfer process from the Central Government to the Autonomous Communities that was an asymmetric process, because aimed to ensure a higher degree of self-government only to those communities seeking a more federalist kind of relationship with the rest of Spain (Catalonia, Galicia, Andalusia, Navarra and Basque Country). On the other hand, the other Autonomous Communities: the regions of “common system” would have a lower self-government. However, these communities were gradually acquiring more powers. Nowadays, Spain is considered one of Europe's most decentralized countries, since all the different Autonomous Communities administered health and education systems, and some aspects of the public budget. Some of them, like the Basque Country and Navarra also manage their public funding without almost count on the Spanish central government supervision.

the lack of scientific information, the emerging Habitats Directive as a new distorting element and opening of proceedings against the kingdom of Spain because of the insufficient transposition into national law were some of the reasons for such slowdown). From 2000 the designation process restarted with an enormous increasing (from 6.91% of Spanish territory in 1999 to 15.5% in 2003).

Regarding the selection process for SPA areas, each region carried out their own inventories or started from the Important Bird Areas (IBA) previously done by BirdLife²¹ that defined the zones that should be declared to conserve the species in the Appendix I of the Bird Directive. After the approval, the Autonomous Communities have to officially publish the new SPA, including them into the autonomous legislation (Rabadán & Suárez, 2008).

SACs implementation

The Habitats Directive transposition to the Spanish regulation turned to be a chaotic and disordered process (Fig. 17). The 4/89 state law for Nature Conservation did not fully include the Natura 2000 Network perspective because its approval was carried out before the Habitats Directive. Later on, through some Royal Decrees²² the Habitats Directive was partly fixed finally, in 2007, the Commission on Environment of the Congress of Deputies approved the new Natural Heritage and Biodiversity Law, updating the legislation for nature preservation, and including all aspects involved in the Natura 2000 Network.

Table 8. Chronology for the transposition process on the Bird and Habitats Directives in Spain

Date	Regulation	Remarks
1979	Directive 79/409/CEE concerning wild bird preservation	It establishes the creation of the SPA Network for the protection of wild birds and their habitat. It involves the first step heading to the preservation <i>in situ</i> by means of the location networks in Europe
1989	State law 4/89 for the preservation of nature locations and wild flora and fauna.	It transposes the Bird Directive 79/409/CEE to the internal Spanish management. No mention to Natura 2000 Network
1992	Directive 92/43/CEE concerning the preservation of natural habitat and wild flora and fauna.	Natura 2000 Network ecologic network comes up.
1995	Royal Decree 1997/1995	Transposes the Habitats Directive 92/43/CEE to the internal Spanish management.
1998	Royal Decree 1193/1998	It modifies the Royal Decree 1997/1995, not having precisely transposed certain articles of the Directive.
2003	Law 43/2003 of Forests	It modifies the law 4/89 including a chapter concerning the Natura 2000 Network, where its structure and Autonomous Communities authority for its designation and management are defined.
2007	Law 42/2007 for Natural Heritage and Biodiversity	It updates the state legislation concerning the Natura 2000 Network: it defines the locations that form the permanent Network, declaration procedures and establishes conservation measures, etc.

Source: Gema Herrero Corral (*Configuration of the Natura 2000 Network in Spain, 2008*)

²¹BirdLife, international organization for bird preservation, which is represented in Spain by the Spanish Ornithology Association (SEO/BirdLife)

²²Through the 1997/1995 and 1193/1998 Royal Decrees and the 43/2003 Forest Law.

During all this legislative chaos, some Autonomous Communities, within their limits of competence, wanted to give a solution to the legal loophole in the state legislation. They added the Natura 2000 Network into their autonomic legislation (Herrero Corral, 2008). Nevertheless, the pace and the way were different depending on the regions: , some results of this are:

- Regions have legislation in respect of nature conservation, but not including specifically the Natura 2000 Network
- Regions that have developed nature conservation laws that consider Natura 2000 Network
- Regions that have include the Natura sites under new categories of Natural Protected Areas. That means that the areas have more restrictions than if they do not belong to any existing protection category.

To have a better picture of the situation see Figure 10.



Source: Own production

Fig. 10. Autonomous legislations included in the Natura 2000 Network.

The regional laws that integrate Natura 2000 can be summed up as follows:

- Defining areas that make up the Network (LIC, SACs, SPAs).
- Introducing the planning and management tools provided by the Habitats Directive.
- Introducing the reporting procedures or modification of the lists, among other things.
- Creating, in specific cases, new categories of protected areas.

Besides, Natura 2000 network is also integrated into the regional legislation being mentioned it in most of the sectorial policies: the urban planning includes limitations in Natura 2000 sites; the forest regional plans mention this Network in some of their action plans; and of course, environmental impact evaluation laws consider its existence (Herrero Corral, 2008).

Establishment in Sweden

Fifteen acts from Swedish environmental law were changed in 1999 after the adoption of the new Environmental Code, the main piece of legislation in terms of nature protection. This code, but it failed to implement Habitat and Bird Directives, because the range of habitat cover was too narrow. The part of the Environmental Code concerning nature conservation was changed to more strictly implement Nature 2000, as there was a risk of being brought to the ECJ (Court of Justice of the European Communities) by the Commission.

The Environmental Code gives authority (sometimes limited) to the Government to adopt national application regulations, although the legislative competence is held by the Parliament. This Environmental Code gives competence on the regional Counties²³ (*Länsstyrelse*), to adopt general regulations and implement nature protection provisions in the respective region. Although the establishment apparently concerned different administrative levels, the involvement in nature protection of the County administrations was higher than other administrative levels (Ebbesson, 2006). Foresters, bird hunters, watchers, fishermen, landowners, etc are important collaborators for the Natura 2000, as well as the Forest Agency and the municipalities.

SPAs and SACs implementation

Sweden joined the European Union in 1995. Hence, both the Habitat and Bird Directives implementation took effect since that year, causing both implementation processes to be carried out in parallel.

The SEPA (Swedish Environment Protection Agency) was designated by the Government to identify relevant sites cooperating with the regional counties and municipalities. The county administrative boards were meant to consult with landowners and relevant authorities and report to the SEPA the relevant areas in the respective jurisdiction (inventories and the site selection based on information in existing databases, such as red lists or protection programs). The Environmental Protection Agency examined the first proposal (and cut down the number of sites considerably) passing the list for the Government's decision on suggested locations. It reviewed the scientific selection, compiled biogeographical charts and decided to suggest new Special Areas of Conservation several times. Some NGOs established “shadow lists” of those sites they considered that should be part of the list. These shadow lists were then sent to the Counties and taken into account by the relevant authorities when preparing the list.

Finally the list was delivered to the Commission.

The first list of SCIs was finished in 1995 and submitted to the Commission. Most of the proposed areas were already protected, and the range of habitat cover was too narrow. Hence the list had to be completed by adding a great number of new, previously non-protected sites. The Commission pointed out several times that Sweden's list did not propose sufficient sites to achieve the requirements of Directive 92/43/EEC. After almost a decade finally the final list was submitted and approved in 2004.

²³Sweden is composed by 21 counties, formed by a government agency that represents the Parliament (the county administrative board) and led by a county governor chosen by the Government. Environmental issues such as protection, nature conservation, fishing and hunting control, as well as social issues as for example social care, gender equality and regional development are some of the boards' responsibilities.

Approximately 60 percent of the Natura 2000 areas were included into the already existing Protected Natural Areas such as nature reserves, national park, etc, so that the Natura areas would be regulated under the existing legislation (notice that most of the traditional protected areas have important restrictions in harvesting (Schulz, 2004)) and the rest that were not included in the traditional categories of protected areas have the status of national interest.

Table 9. *The establishment of conservation schemes*

The establishment of conservation schemes	
March 2004	Location Reporting to the Environmental Protection Agency and other stakeholders in the work.
August 2004	Finished draft should be available for all areas
August 2005	Expression of conservation plans to the Environmental Protection Agency and other stakeholders in the work, with request asking to work with the government declaring the respective SCI field SAC area.
September 2005	Environmental Protection Agency asking the Government for the respective SCI area declared as SAC area.

Source: own production

Natura 2000 Network management

The Habitats Directive states that the member states have to take, for every Natura 2000 area, the necessary measures to guarantee the conservation of the involved habitat and species. Yet, it is not very specific when defining these measures, giving only some general ideas to carry them out²⁴:

- The development and start-up management plans that can be specific or integrated into the local development planning.
- Regulatory, administration or contractual measures responding the species and habitat' requirements.
- Appropriate measures to avoid habitat and species' deterioration.

(WWF)

The management of Natura 2000 sites can be done through: specific management plans created for those sites or by integrating these areas management into other existing plans.

Natura 2000 Network management in Spain

As described above, there are no common guidelines in Spain for the network management, and therefore the situation is very variable in all the territory.

Plans vs guidelines for management

There are two ways of understanding the Natura Network area management in Spain: through one management plan for each area²⁵ or by using a planning system considering together all the Natura 2000 areas in a Autonomous Community: the guidelines²⁶. The use of one or other way is conditioned on the particular administrative idiosyncrasy of the different Autonomous Communities and their particular territorial situation within other factors (Rozas & Blázquez,

²⁴ Article 6: about Natura Network areas' management.

²⁵ Case of Asturias, La Rioja or Comunidad Valenciana.

²⁶ Case of Andalucía or Castilla la Mancha.

2008). Management plans can be incorporated into existing plans like the PORN and PRUG²⁷, and therefore considering the areas as Protected Nature Areas (PNA). In the latter case the management will be more restrictive regarding some activities, than it would have been under Natura 2000 alone²⁸ Network.(Rozas & Blázquez, 2008). According to the Action Plan for the Spanish State's Protected Nature Areas, the elements that should have this management plans and guidelines are:

1. Introduction, background and justification
2. Management aims or objectives
3. Operative objectives

- Informative part
4. Report
 - 4.1. Information compilation and synthesis
 - 4.2. Diagnostic, prediction and potentials
 - 4.3. Strategy

- Enacting terms
5. Legislation
 - 5.1. General provisions
 - 5.2. Zoning
 - 5.3. Use procedures
 - 5.4. Directives
 - 5.4.1. Management
 - 5.4.2. For sectorial politics (guide other administrations)

6. Basic actions
7. Economic and financial program
8. Verification and tracking system
9. Synthesis document
10. Documental and cartographic appendixes

Source: EUROPARC-Spain, 2002

Fig.11. Elements that should have the management plans and guidelines.

²⁷**PORN** (Natural Resources Management Plan)

It is approved before declaring the Nature Protected Area (or it should be).

Goal: preservation measures, protection, improvement and rational use of the EN.

Its application framework has to exceed the territorial limits of the park.

Limited duration.

PRUG (Use and Management Governing Plan)

It is the tool used by those responsible for the area to achieve the objectives of the PORN.

Limited duration, application only in the ENP.

Done after declaring the ENP.

More concrete than the PORN.

It defines the objectives of the EP, areas, budgets, etc.

²⁸In the state and autonomous Administration protected areas (ENP) the legislation is usually very restrictive, while this legislation is very generic in those protected by international conventions and the management and use are barely regulated. Therefore, the declaration of Nature Protected Area turns the area into an administration protected area, and this involves the treatment of public utility goods for the private and local properties declared this way. This is in terms of expropriation and the administration faculty for the exercise of the rights of preemption and buyout in land trading, as well as limitations in the liberty of land availability for agricultural productions and industrial and urban use when these (according to the established protection grade) change in an irreversible manner the elements or the dynamics of the protected areas, that is to say, there are usually more restrictions for the activities developed in those areas.

Other measures with a great potential offered by the Directive such as administrative measures (e.g. provision of funds for management) or contractual ones (e.g. management agreements with owners) are being sparingly used.

Ecological corridor management

There is another factor that is being much discussed nowadays. It is the concept of connectivity between areas²⁹ which is included in the Habitats Directive. For the Mediterranean context, the Directive is likely to fall short in considering essentially linear structures as contributing to that connectivity (Vicens, 2003). Since taking the classic concept of ecological corridor (narrow strip that connects two spaces), typical of conservation models in northern Europe (some protected areas scattered in an area highly modified or with a certain uniformity i.e. with similar characteristics, connected by corridors). But considering that the Mediterranean landscape comprises a complex mosaic of uses, a good planning and management would mean a global planning, achieving that the whole territory works properly regarding the connection between protected areas (IX EUROPARC -Spain³⁰ Congress. Nature 2000 Network: Integration of conservation networks).

Regarding to ecological corridors the Spanish Law of Natural Heritage and Biodiversity (Law 42/2007) (the Habitats Directive transposition) states in the Article 20 that the government shall provide in its environmental planning or Natural Resources Management Plan (PORN) mechanisms for achieving the ecological connectivity in the territory, establishing or restoring corridors, particularly between the protected areas Natura 2000 and between those spaces of singular importance for biodiversity. This will give a priority role to the rivers, the trails, mountain areas and other elements of the territory to act as linkage. Substantial differences occur between regions again due to the complexity of Spanish terrain, and the difficulty in delimiting and managing ecological corridors. To address these differences, or at least provide information about these ecological connections by analyzing the coherence of the Natura 2000 network in Spain a national program whose conclusion is planned for 2011 was set up.

Natura 2000 Network management in Sweden

Each Swedish Natura 2000 site is obliged to have a management plan.

Most of the all protected areas in Sweden include forest ; 75% of such areas are composed by old forests located in the mountainous region without the need of and intensive conservation management (Carlgren, 2009).

As discussed above, more than 60% of Natura 2000 sites are protected under traditional protection categories such as national parks, nature reserves, and etc. with the already existing restrictions. With regard to the rest areas designed as Natura 2000 the measure selected to protect them relies mainly on a special and characteristic permits system (also established in Finland) (Ebbesson, 2006). Furthermore, in some areas voluntary agreements for nature conservation have been established between the landowner and the competent authority as for example in case of forest land the Forest Agency.

²⁹Connectivity between areas is defined by the Habitats Directive as the quality of the landscape that makes possible the flow of materials and individuals, among different ecosystems, communities, species or populations.

³⁰EUROPARC-Spain is an organization where the institutions involved in planning and management of protected areas collaborate.

The governmental resources for the Natura 2000 management are distributed by the SEPA to the county administrations. These also coordinate among the different stakeholders, since they involve municipalities affected, landowners and local associations in order to jointly work with them to discuss how the conservation plan should be developed in each Natura site (SEPA, 2008).

SEPA also supports on the guidance and establishment of Natura 2000 sites and develops national strategies and draw up practical guides (SEPA, 2008).

Table 10. SEPA and County administrative boards role

Swedish Environmental Protection Agency	County administrative boards
Governmental resources distribution for management	Make management plan and carry it on
Co-ordinate and monitoring environmental protection work	Coordination of regional environmental monitoring
Follow-up of the result of nature protection work	Involvement of stakeholders
Draw up guidance, practical guides and national reports,	
Coordinate methods	

Swedish Environmental Protection Agency: *A Swedish concept for monitoring and Monitoring of Natura 2000*. 2002

Each management plan has to describe in an accurately way:

- Values to be preserved.
- Measures needed to preserve.
- When the measures will be implemented as well as the purpose and goal of conservation.
- An assessment about the need for restoration and what is the protection or the maintenance required.
- Outline the activities or actions that may threat species or habitats protected.

(SEPA, 2008)

These plans were to be completed by August 2005.

As noted above, one characteristic of Swedish Natura sites management is the permit system. The protection for all Nature 2000 sites is carried out through this permit system for any activity that has significant impact on the environment in a Natura 2000 site. A permit can be granted only case the activity does not have negative impact on natural habitat and species (Ebbesson, 2006). According to this system anyone who will perform the operation or activity shall seek permission³¹. Each application must include an environmental impact assessment (EIA) with the assessment of its impact on the Natura 2000 values, alternatives and appropriate safeguards. There is also the possibility of permit revision if an activity already permitted begins to disturb a site. Examples of activities and actions that normally require the permission are: digging, excavating, blasting, storage, extraction of gravel, sand, soil, peat, etc. Forestry measures such as harvesting, thinning, pruning, soil preparation, planting, collecting firewood and fallen trees, etc, may need to consider whether the action is brought

³¹Chapter 7, Section 28. Environmental Code).

within one Natura 2000 site. Examples of activities and actions that normally do not require the permit are: regular maintenance (clean ditches, gravel and asphalt)(SEPA, 2008).

This system is applied in both areas which have already the protection and those that have been proposed by the Government to be included in the network as SACs.

Another conservation strategy is carried out through the establishment of conservation contracts. Such contracts are similar to leases³² and are established between the State or municipality and the landowner. The agreement signed for some time, maximum 50 years, and Conservation agreement may, but need not, include compensation to the landowner. From a landowner's perspective, this could be a way of avoid the more intrusive forms of protection such as nature reserves³³.

Natura 2000 network financing

The administrative expenses of the Natura 2000 are covered by national budgets according to the principle of subsidiarity. However, Article 8 of the Habitats Directive³⁴ provides the possibility of Community funding for activities that need it. Thus, each member state must assess the amounts required to conserve species or sites hosting priority habitat, and notify the European Commission to co-finance the necessary measures for protection.

The European Commission, in 1999, established a working group with representatives of several member states, some organizations, social partners and the technical services of the Commission, to make a report to determine the financial requirements of the Natura 2000 and the adequacy of existing financial instruments. The final report, submitted by the end of 2000, identified a number of criteria that must be fulfilled by the appropriate financial instruments taking into account that the funds would not be enough to achieve all the requirements. Other recommendations such as the creation of an exclusive fund for Natura with sufficient funding were made.

The final decision was to take the "Integration Option. This meant that national and regional authorities to plan and implement financial programs must integrate Natura 2000 Network management in a broader regional development, preventing the duplication and overlap of different EU funding instruments.

In addition, the budget allocation between member states and co-financing rates, does not regard to the area contribution of each country but only to economic parameters, so that is not offset by greater relative contribution of biodiversity to natural heritage of the EU. The main instruments of EU funding for the 2007-13 period that can be used to finance measures related to areas of Natura 2000 are:

- The European Agricultural Fund for Rural Development (EAFRD)
- Structural Funds:
 - European Regional Development Fund (ERDF)
 - Social Fund (ESF)
- The Cohesion Fund
- The Financial Instrument for the Environment (LIFE +)
- The 7th Research Framework Programme (FP7).

APPENDIX 1

³²Chapter 7, Article 3. Land Code considers conservation agreement as a lease.

³³The Forest Agency has in recent years signed conservation agreements for nearly 1000 cases and has recommended the government to plan for agreements of 50 000 hectares of land in 2010.

³⁴Article related to Natura 2000 Network financing.

Spanish Natura 2000 Network Financing

Since Spain is the country that contributes with the largest area in the Natura network, was one of the States that had more interest in highlighting the economic problems that would come up to maintain it. A report³⁵ gave a figure of €1.300 million per year for the period 2003-2012 (see Appendix 2) (Working Group on Article 8 of the Habitats Directive, 2002), exceeding, in absolute terms, the figures given for other countries.). In this report was also advised that the countries with most responsibility for conservation of Natura 2000 providing more surface area should have commensurate support. But finally as it has already been discussed above, was decided that the funds would be distributed only according to economic parameters. In any case it was shown that financing needs of Natura 2000 Network and are not enough.

It was mentioned above that the EU expected the costs for Natura 2000 to be met using a variety of funds, none of which is specific for this programme. Consequently, The Ministry of Environment and Rural and Marine Affairs found it difficult to specify the funding used for the Natura 2000 network, as budgets and allocations were allocated for wider action than network purposes alone. So it is possible to highlight mainly some figures which refer indirectly to the financing of the Natura 2000 network (Álvarez Jiménez, 2003). Thus, in the following only a gross overview is provided:

A) **EAFRD funds:** The axis 2: *Improving the environment and the countryside*, is directed specifically at improving the environment and rural areas, and therefore is the most suitable to finance many of the Natura 2000 network activities.

These funds are not distributed equally to all regions (there are many different criteria in the allocation formula) and they are neither allocate to all the Autonomous Communities (Table 11).



Source: own production

Fig. 12. Map of Distribution of EAFRD funds + Public funds.

This axis is used to finance for example compensation for lost profits or additional costs due to restrictions or modifications of the land use due to the regulations in each Natura 2000 site

³⁵Report prepared by a Spanish group of experts for European Commission

(both in farmland and forest land). It also funds silvo and agro environmental measures to implement specific commitments in their management, and "unproductive" investment to increase the natural value, especially related to Natura 2000 (Spanish Ministry of the Environment and Rural and Marine Affairs, 2008).

Table 11. EAFRD breakdown allocated to finance axis 2 for 2007-2013 period in Spain

AXIS 2: rural areas and environment improvement			
	EAFRD(€million)	CO-FIN%	Public funds +EAFRD (€million)
SPAIN	1954	55,70	3.509

Source: own production based on data from the Ministry of Economy and Finance of Spain

Keep in mind that these funds do not are allocated entirely to the Natura 2000 Network, only are the most suitable for that purpose within the EAFRD funds.

At least one of the six actions set out in the National Strategic Plan is dedicated specifically to Natura 2000 in forest land (30% of the total Spanish surface). This measure has a budget of € 30 million /year³⁶ for the whole period 2007-2013 which makes on average 17 €/ ha in forests of Natura 2000 (Spanish Ministry of the Environment and Rural and Marine Affairs, 2008).

The implementation of financial measures relating to agriculture aspects in Natura 2000 areas is left to the decision of the Autonomous Communities. And, in case they do not cover compensation for lost profits resulting from the specific rules of Natura 2000, these areas would be given priority in to the agro-aid. Some regions have financing actions on specifics habitat and others have specific funds for Natura 2000 sites (Spanish Ministry of the Environment and Rural and Marine Affairs, 2008).

B) Structural (ERDF, ESF) and Cohesion Funds:

While the Cohesion Fund has a unique state-wide program, the structural funds are regionalized; that is, each Autonomous Community has its own operative program. These funds are distributed to the different regions according to three objectives depending on which, they will receive more or less economic support: Convergence, Regional Competitiveness and Employment, and European Territorial Cooperation.

Therefore these funds will support only those Autonomous Communities, that belong to the convergence zone (those with income less than 75% of EU average: Galicia, Castilla La Mancha, Andalucía, Extremadura) and to those included in the phasing out zone (income lower than 75% of EU 15 but higher than EU 25: Asturias, Murcia, Ceuta and Melilla) (Fig. 13)

³⁶ Public and EAFRD funds are included in the amount



Source: own production

Fig. 13. ERDF funds distribution map (in% of contribution).

The General Directorate of Natural Environment and Forest Policy will give €50 million/ year from the ERDF funds to the Autonomous Communities in the period 2007-2013 to finance actions in areas of great value for their natural resources and its biodiversity, especially those included in the Natura 2000 network as:

- Restoration of habitat and species
- Construction of infrastructure for the conservation of species
- Construction of infrastructures for awareness and public use
- Purchase of land for environmental protection and restoration.

(Spanish Ministry of Economy and Finance, 2007)

Regarding the cohesion funds the actions outlined in the Axis 2³⁷ are actually not very related to financing Natura 2000 Network (Rabadán, Suarez, Atienza, Infante, & Valls, 2007)³⁸.

C) LIFE+

It is the financial instrument for the environment. It is formed by three components: LIFE+ Nature and Biodiversity, LIFE+ Environment Policy and Governance and LIFE+ Information and Communication.

The budget for Spain is 20 million per year for 2007-2013, is far smaller than the others funds, serving only for support demonstration projects.

337 Natura 2000 sites have been directly connected to LIFE projects (of the total 387 LIFE projects, since the LIFE-program was set up in 1992 up to nowadays). These projects have enhanced the capacity to manage Natura 2000 in the country, by providing updated and

³⁷The axis 2 is related to Environment and Sustainable Development and the measures that presents regards to water supply, waste management and risk prevention including forest fires.

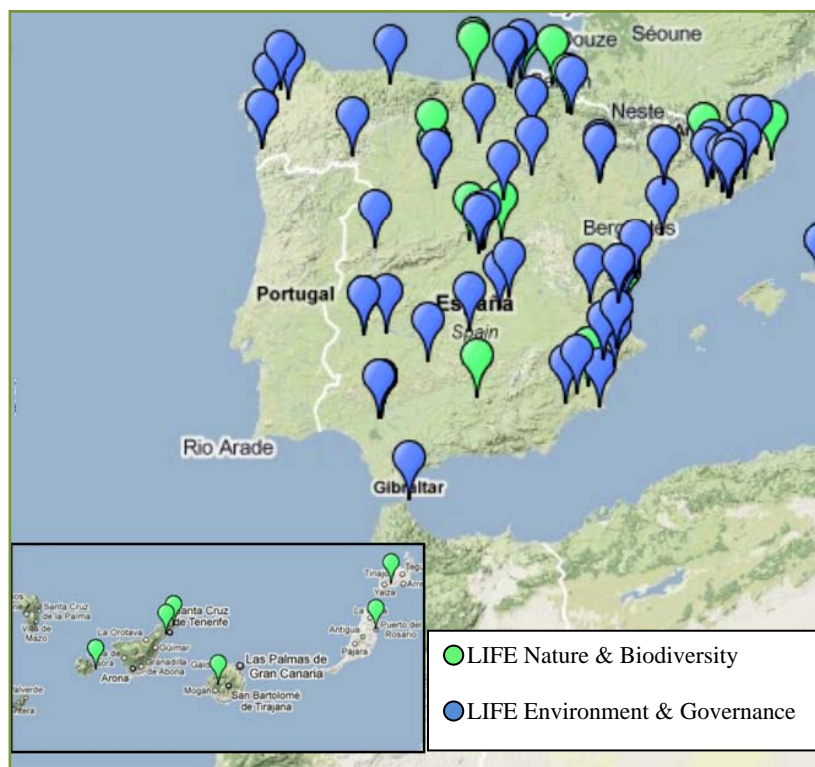
³⁸The actions proposed for water supply and waste management are not very focused on the Natura 2000 management and risk prevention aid is spent on the purchase of aircraft for fire suppression, which is not considered as an activity of Natura 2000 management (if it had been invested in fire prevention activities rather than in machinery, such activity would have been considered management of Natura 2000).

quality information for the future development of the Network in Spanish habitat, useful for similar areas (COWI, 2009). Some characteristics about these projects can be seen below:

Table 12. Overview of LIFE projects 1996-2006 in Spain

	Projects number	Total LIFE contribution (million EUR)	Main themes covered	Average LIFE contribution/project (million EUR)	Average project duration
Environment	152	73,6	Natural resources & waste (37%) Strategic approaches (19%) Water (17%)	0,4	3
Nature	121	90,8	Habitat (60%)	0,4	4

Source: Butler



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Fig. 14. Main LIFE+ Projects distribution in Spain.

In the study that each country made to estimate the financing requirements of Natura 2000 Network, the result showed that Spain will need 100 €/ ha year. Therefore the figures above confirmed the report³⁹ carried out by the European Commission on the financing of Natura 2000 which stated that the current budget assigned by the Spanish government to the management of protected areas would be well below what is considered necessary. Also from NGOs such as WWF-Adena or SEO-Birdlife, and after preparing reports about the status of

³⁹Final Report on Financing Natura 2000. Working Article 8 of the Habitats Directive of the European Commission (2003).

implementation of Natura 2000 Network in Spain state that European funds were not sufficient.

Moreover it should be noted that Spain is seeing a dramatic reduction on the receipt of structural and cohesion funds (with an average of 42.7% of reduction for 2007-13 over the previous period), casts considerable doubt on the financing of the Spanish Natura 2000 Network.

Swedish Natura 2000 Network financing

The increasing of funds for nature conservation in Sweden has progressed considerably in the last decade, for instance the Swedish Parliament forced the raising of funding for natural reserves from €19 million per year (1998) to nearly €90 million per year (2004) (Fridolin JR & Catalán).

Regarding to specific information about the national budgets and European funds allocations destined directly or indirectly to Natura 2000 Network to have the same order of magnitude as the Spanish information found, hardly any overview has been done (personal information, Anna Lindhagen, SEPA).

The estimated costs for the Natura 2000 network in Sweden for the period 2003-2012 were € 192,7 million per year without including agro-environment costs (Appendix 2) (Working Group on Article 8 of the Habitats Directive, 2002).

EAFRD funds

As noted above, the action axis 2 from rural development regulation drafted by the European Commission for the EARD funds is directed specifically at improving the environment and rural areas, and therefore is the best suited to finance most of the activities of Natura 2000 network.

Table 13. EAFRD allocated to finance axis 2 for 2007-2013 period in Sweden

AXIS 2: rural areas and environment improvement			
	EAFRD(€million)	CO-FIN%³	Public funds +EAFRD (€million)
SWEDEN	1261	46,66	2702

Source: European Commission.

A) ERDF funds

The focus of the Swedish regional programs for the Regional Fund (**ERDF**) falls under only one of the three European approaches for such funds: *Regional competitiveness and employment objective*. It has been translated into a National Action Plan for Growth and Jobs Strategy as "A national strategy for regional competitiveness, entrepreneurship and employment 2007-2013". There are four main priorities:

- Innovation and Renewal
- Skills and increased labor supply
- Accessibility
- strategic cross-border cooperation.

Action for areas of great value for their natural resources and its biodiversity are not considered to finance directly Natura 2000 activities (EU-upplysningen, 2010)

C) Cohesion Funds

Sweden does not meet the requirements for assistance from the Cohesion Fund. No region meets the requirements for support for actions under the convergence objective (EU-upplysningen, 2010).

C) LIFE+

The LIFE+ budget for Sweden was about €13 million in 2009.

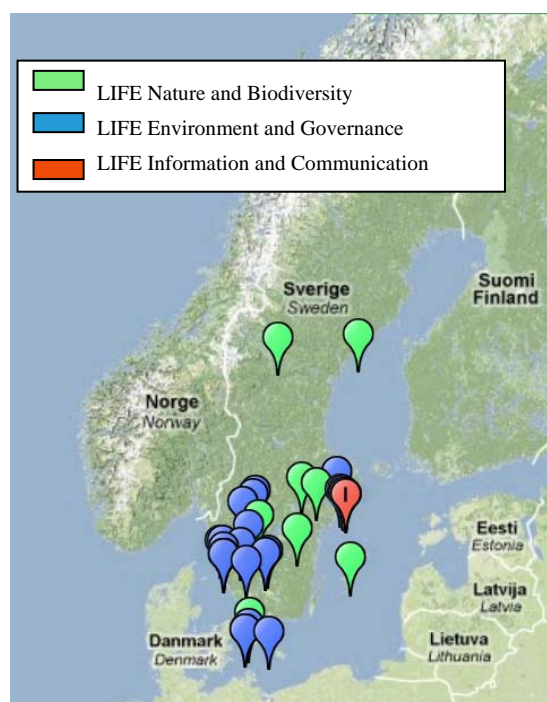
Since the beginning of the programme in 1992, 132 projects have been financed, with a total investment of €196.3 million (37.5% of which was financed by EU), (European Commission-DG Environment, 2009).

Table 14. Overview of LIFE projects 1996-2006 in Sweden

	Number of projects	Total LIFE contribution (million EUR)	Main themes covered	Average LIFE contribution/project (million EUR)	Average project duration
Environment	50	29,3	Natural resources& waste (36%) Water (16%)	0,7	3,5
Nature	28	29,9	Habitat (93%)	1,06	4,2

Source: Butler

But only few projects have been directly affected by LIFE projects (COWI, 2009). Despite of that, in the Analysis: *Ex-Post Evaluation of Projects and Activities Financed under the LIFE Programme*, it was asserted that in opinion of project managers and under the national focal point, LIFE affected indirectly to more other sites since LIFE projects contribute with new methods developed that can be assumed in other Natura 2000 sites.



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Fig. 15. Main LIFE+ Projects distribution in Sweden.

Natura 2000 Network integration in society

Even though 18 years have passed since the adoption of the Habitats Directive, a widespread confusion between sectors of society still exists nowadays. The misinformation and misunderstanding have led to some social reactions against Natura 2000. Although the local population is not considered when delimiting the areas, its social and economic circumstances it will be so in deciding what management measures will be used. It should be notice that one of the final goals is the coexistence of social needs and nature conservation⁴⁰.

Jesús Barreiro Hurlé⁴¹ explained in EUROPARC-Spain Congress 2005 (*Communicating the benefits of protected areas to society*) that the public expenditure on nature conservation is not currently associated with the actual cost that this activity requires. That is, although in an ideal situation public expenditure should be greater than the economic cost, in reality it is proved that the economic cost is much higher than public expenditure dedicated to nature conservation, and what is more serious, public expenditure does not reach the level of compensation that should be given to private actors for the limitations imposed on their activities. Therefore the total cost of the nature conservation, even if not reflected in the budgets, exists and someone is paying it. If it did not exist or were not paid, conservation would not exist. Only by recognizing this, we will able to understand some of the existing conflicts regarding to the nature conservation and society (Barreiro Hurlé, 2005).

Hence, one of the most important issues in relation to the social reactions occurred in certain sectors of society is financial compensation for lost profits. In this sense EAFRD funds include two specific measures⁴² to compensate those farmers, ranchers and forest owners who have a reduction in revenue. Nevertheless Natura 2000 network have also been considered, in some cases, as a new tool for the creation of new economic resources such us ecotourism, organic farming, etc.



Fuente: WWF/Cristina Rabadán

Fig. 16. Poster against SPA spaces (ZEPA in Spanish).

⁴⁰ Article 2 of Habitats Directive.

⁴¹ Agricultural Economics and Sociology area. Andalusian Institute of Agrarian Research. Andalusian government.

⁴²(article 38 and 46)

Natura 2000 Network integration in society: Spain

Most of the Natura 2000 sites coincide with the most depressed regions of the country socially and economically. With high rates of migration and population aging, which result is reflected in the abandonment of the natural environment management (Sunyer & Hueso, 2003). This can lead to disappearance of a culture linked to the use of resources, which allowed the conservation of many habitat and species during the history.

For this reason the establishment of Natura 2000 caused the suspicion of certain sectors of society totally dependent on the activities conducted in those areas.

The debate was and still is focused around several issues:

- Reduction of agricultural, livestock, forestry and hunting activities Vs Compensatory allowances
- Land use, private property and projects.

WWF-Adena, produced a report (*Myths about the Natura 2000: Answers to important questions about the European network of protected areas, 2008*), responding to the most frequent questions raised by affected people. The main ones concerned the continuation of land use related activities; if farming would be banned, if hunting would be banned, if there would be specific measures to compensate farmers, ranchers and forest owners of potential economic losses, if the forest officials would have more right to enter into private land, if there would be aids to compensate landowners that have protected species on his land, if the right to private property would be respect, if there would be the possibility of right of pre-emption by the administration, if built up would be prohibited, why further evaluation and permissions would be needed when doing an infrastructure, and the injustice of having kept a space for years, and after taking part on the Natura 2000 there are restrictions on the activities when if it had not kept it would not have declared Natura 2000 site (Rabadán & Suárez, 2008).

One of the most controversial measures was that in some regions the areas included in Natura 2000 were declared as Protected Natural Areas (PNA) according to Spanish law⁴³. The consequences of that classification are more deep-going than the Natura 2000 network classification as such: Natural Resources Management Plan (PORN) is required, and also a Use and Management Governing Plan (PRUG), there is right of pre-emption⁴⁴ by the State and often more restrictions on the activities.

The issue is further complicated when we look into urban planning legislation, which assumes the idea of conservation in a more restrictive way than the environmental one. Because there is a category of rural land that deal with the special protection of natural areas and includes all Natura 2000 areas. This means that there are land uses that are not authorized by the Spanish law, but allowed under the European Directive because they are considered as traditional uses, such as: agricultural facilities, greenhouses, support facilities for extensive

⁴³The protected areas may be classified into three categories: natural protected areas under Spanish law (national or regional), Natura 2000 network sites under European legislation and other figures reported under International Conventions and Biosphere Reserves

⁴⁴A **pre-emption right** is the right to acquire a property in preference to any other person. In this case the State has such right.

livestock, support facilities for logging and forest defense, and other uses prohibited so essential to rural areas as cemeteries, tourist camps, gas stations, infrastructure for water treatment and municipal solid waste treatment, etc.

Furthermore, although The Natural Heritage and Biodiversity Act specifies the need of compensation to the affected population, and a specific fund⁴⁵ was created, in most cases the management plans (which include the compensatory allowances) are still unfinished. Moreover, it is at the discretion of the Autonomous Communities to decide whether or not to implement these compensatory allowances within its territory. In principle, traditional activities that do not harm the protected areas can continue to be carried out, at least until the management plans are approved (López Rodríguez, 2009).

But while there were negative reactions to the Natura 2000 Network, other ones in favor of it appeared. There were the ones who found out the potential to achieve rural development through sustainable rural development based on quality, especially in Mediterranean countries, where much of the protected areas still maintain traditional agricultural practices compatible with nature conservation (Sunyer & Manteiga, 1998).

Some examples of this development are reflected for instance in the development of organic farming, turning from 4.235 hectares in 1991 up to 1.317.751 hectares in 2008 (data from the Ministry of the Environment and Rural and Marine Affairs) or that has been experienced by the tourism about 1.2 million rural tourists in 2001 to more than 2.5 million in 2008 (INE data. Survey of Tourist Accommodation Occupancy-EOTR (rural tourism) (2001-2008)). Although these figures do not make specific reference to Natura 2000 network, they can show us the trend which is being experienced.

Natura 2000 Network integration in society: Sweden

Forest and forestry have an extremely importance in Sweden (about 65 % of the total surface is covered by forest), not surprisingly it accounts for 10-12% of all employment and is one of the main exporting industries with more than SEK 120 billion (€10 billion) each year (11% of total exports) (KTH, 2010). It is clear that some controversies in the identification process for Nature 2000 sites have been related to the protection of certain forest areas, since forestry is considered one of the threats against Nature 2000 sites (one reason is the decrease of broadleaves forests in favor of conifers, but also a general loss of biodiversity in managed forests) (Ebbesson, 2006). Solutions have been sought through voluntary collaboration between forest owners, other stakeholders and public administration in selecting the areas occurred.

Moreover, in the case that landowners have a considerable limitation in the activities, compensation measures for loss profits can be sought. The damage must reach a certain level, a so-called *qualification limit* for compensation to be paid. Damage up to the limit of qualification must be suffered by the landowner without compensation. The rules governing compensation for infringement are only linked to the current land use, which means that compensation is not based on the expectation of a change in land use (Lansstyrelsen, 2003). Despite some controversy, , the confrontations in the designation of Natura 2000 sites in Sweden were limited compared with other countries. It was probably the result of the long process (almost 10 years), which began with the selection of areas that were already protected

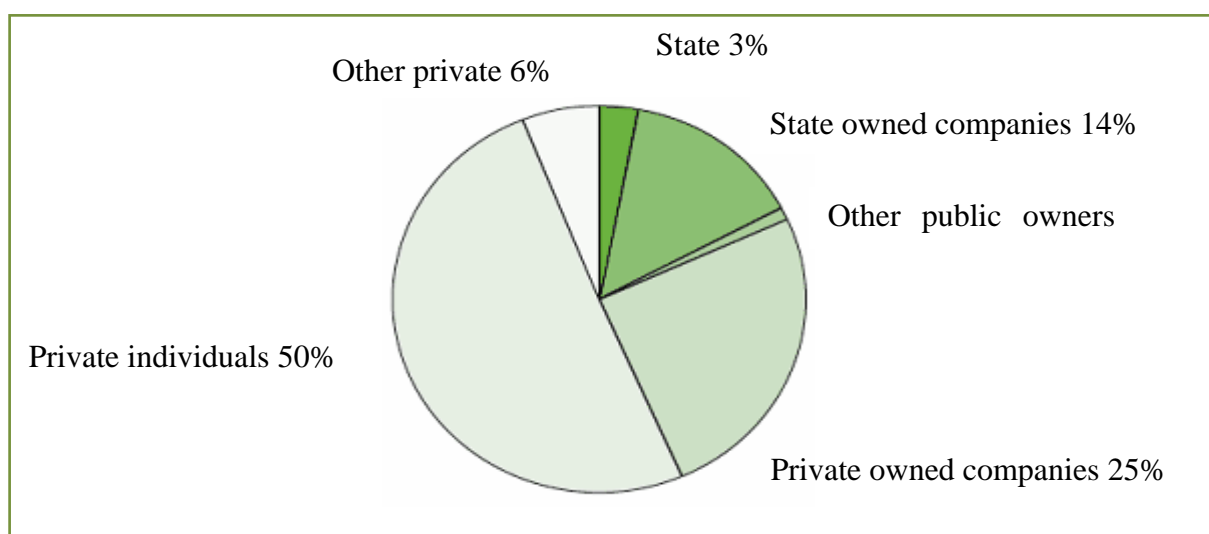
⁴⁵The Natural Heritage and Biodiversity fund: The fund consists of amounts allocated in the State Budget and allocations from European funds with the aim of co-financing the compensation for lost profits.

by law such as Nature Reserve or National parks, and continued with the identification of other areas, including private land. Even if it took its time and rendered criticism by the EU authorities, a feeling of joint cooperation was created, something always considered valuable and characterizing the Swedish society (Wramner, 2005).

To better understand the possible controversies it is necessary to go deeply into the forest and natural resources significance in society. It should be noted that:

- There are private 250 000 forest holdings with 355.000 owners in a country of 9.3 million inhabitants.
- Private individuals (families) are the more important single group of forest owners (50% of forests belongs to them), frequently organized into forest owners' associations.
- 25% of forests belong to a few major forestry companies.
- 25% of forests belong to the State (state owned Sveaskog and directly) and other public owners (municipalities, Church, etc).
- The ownership is different depending on the region: the South is mainly owned by families (more than 80%) and the North more surfaces is owned by companies.
- Until World War II, forests belonged mainly to farmers who inhabited in their property and combined forestry and agriculture.
- Nowadays the majority individual forest owners use employees because they do not live on their forest land any more.
- According to the forest policy the responsibility for the environment is a "sectorial" issue. I.e. forest owners and workers are responsible for obtaining the requisite knowledge to carry out environmental measures.
- Availability of nature: Since old times there is the right of free access to any land and outdoor recreation together with biodiversity form the mainstay of Swedish nature conservation policy.

(Nordic Family Forestry, 2007), (Faculty of Natural Resources Management- Lakehead University), (Schulz, 2004).



Source: SwedishForest Agency, Analysis Department

Fig. 17. Forest land area by ownership classes, year 2007.

As seen before, the forest and nature influence on society is significant. *Björn Hägglund*, an important figure in the field of forestry, mentioned in his analysis of Swedish forestry (Hägglund, 1991) that communication, participation and approval of professional foresters has been the key in the successful development of forest policies in the country.

This relatively good communication between the authorities and population concerned can be also seen clearly in the fact that:

- Many protected areas (included its restrictions on activities) are on private land and in many cases the owners are the ones who give the initiative for the protected area creation.
- In other areas agreements between authorities and landowners on productive land have been set up, i.e. compensated for loss profits.
- There are also totally voluntary set-asides by private landowners.

(Schulz, 2004)

In the handbook *Natura 2000 in Sweden* (2003), the SEPA considers it important to take advantage of local people engagement to develop Natura 2000. The handbook also states that the best way to achieve participation in the work, is to involve all stakeholders such as farmers, municipalities, universities, reindeer herders, voluntary associations, sports clubs and recreational organizations, early in the process. Moreover, it is a requirement by law that the different authorities within their powers and responsibility to take all necessary or appropriate measures to integrate different sectors of interest in a Natura 2000 site such as health care, environmental benefits in agriculture, environmental work and environmental monitoring.

Discussion

By comparing general characteristics that can influence the establishment of Natura 2000 areas can be observed the first differences in both countries. Great variability of soils, climate and geomorphology present in Spain faces a great homogeneity in the case of Sweden. This would explain the higher Spanish biodiversity and objectively the major terrain shared (keep in mind that the total area of both countries is almost the same).

Remarkable is the great difference in the contribution of the two site types (SPA and SCI) in the case of Sweden: SCI areas (sites under the Habitats Directive) are twice than SPA area (sites under the Birds Directive) and almost 100% overlap with the previous. In Spain, the contribution is quite similar, slightly larger for SCI. There is a percentage of overlap but is not as large as in Sweden.

The differences in distribution and size are also very significant in Sweden. Two zones can be clearly distinguished:

- One coincides with the Alpine biogeographic region, dominated by sites with large areas located in mountainous zones.
- The other, coincides with the larger biogeographic region in Sweden, the boreal region, dominated by a multitude of much smaller sites located on the fennoscandian plateau

In Spain, it may seem that the distribution is more homogeneous, but if we compare the Swedish pattern we find out that, as in Sweden, most of the spaces are located in major mountain ranges (more equally distributed than in the case of Sweden), except for some great cereal plains with importance as an ecosystem of various birds species (that could be why this areas are usually SPA).

I point to as the biggest difference, the size and number of protected areas in both countries: Sweden with less than half of the area provided (64.989Km^2 against 155.064 km^2) has more than double number of sites the (4.071 versus 1.774).

In this regard and considering the texts handled, I noticed that in Spain there is huge interest in terms of management and viability of the connection between spaces, while in Sweden, although is a discussed issue, the debate has not the same intensity. One possible explanation is directly related to the nature network features discussed above. To maintain biodiversity in good condition the possibility of genetic exchange between different populations is the key. So having Spain large sites but with more distance between them is considerably more difficult such exchange.

Which were the reasons for these characteristics and whether they have only been the result of scientific criteria is difficult to answer as long as the sponsor of this ambitious project is the main agent that disrupts the nature conservation. Could we think there is more biodiversity in mountainous areas and hence most of the natural surface is in there? Apparently we could. Both in Sweden and in Spain generally these areas have experienced less pressure throughout history and higher degree of conservation has been kept. But thinking that it is the only reason for its location, it is more difficult to affirm.

It is noteworthy that in Sweden the collaboration with stakeholders (landowners, foresters, bird hunters, watchers, fisherman, etc) is considered essential to achieve the success of the Natura Network. Issue that is present directly or indirectly in almost all texts handled. And, even though the selection process should be based only on scientific criteria (as stated in the European Directives); Sweden finally, and after some controversies, took into account the opinion and approval of the landowner.

The implementation process was long in both countries. The original list had to be repeated many times because of the notable gaps in both species and habitat. This process was carried out at different levels: European, national, regional and in the case of Sweden as well as local and even individual level (again appears the "collaboration of the owner-public administration).

The fact that makes the most remarkable difference between both countries is the Spanish competence structure. Although the site selection process and their management is also done at the regional level in Sweden, the legislation is at national level and that made a more homogeneous process (one example could be the fact that each Natura site either is part of the Protected Natural Areas or is included in a new category: National Interest). In Spain, the Autonomous Communities have the competence in relation to protected areas, both legislative and executive, and therefore each region legislated such areas independently. This resulted in an enormous heterogeneity of the implementation process between different regions. The Natura sites were considered differently depending on the region (some included them in the network of Protected Natural Areas, other created new categories and other simply covered them with the most basic laws).

The order of the Swedish implementation process was another difference: starting with the adoption as Natura sites the already Protected Natural Areas as national parks, nature reserves etc. and, after long discussions with landowners in the progressive enlargement, more spaces were added.

As for the management, the main responsibility is on the regional administrations in both countries, but again differentiating features can be noticed. A specific management plan is obligatory for each site in the Scandinavian country. In Spain the management can be done through a specific plan for each site or through guidelines at regional level, once again depending on the region. Besides, in case of Spain these management tools may be: the already governing the Protected Natural Areas with more restrictions on activities or tools with less implications as for example the guidelines. Sweden proposes in this respect most innovative tools, again relying on collaborations between landowners and public administration. These tools are: a permit system for any activity that has significant impact on the environment in a Natura 2000 site (in Spain the regulation on activities are generally in management plans or guidelines) and the possibility of conservation contracts between public administration and landowners, so that the owner lease the land, and may also receive compensation. The latter method is being understood by the owners as a way to avoid more intrusive forms of protection, such as traditional nature reserves, parks etc.

One of the initial objectives of this study was the comparison of funding strategies in both countries. Given that Sweden receives much less European funds compared to Spain, plus the drastic reduction of these funds for this country in the coming years and the lack of financing alternatives beyond the co-financing. It was particularly interesting the analysis of Swedish case to see if its strategy could be assumed in Spain. The impossibility of finding defined

funding guidelines in Sweden, together with the vast differences found in all respects discussed above made me rethink this goal and limit it to a more superficial analysis.

In my view the funding for the network is not well defined, and that is its main weakness. The conception that the EU has established for funding: the integration option, has as a result that makes difficult to meet specific figures for it. It seems that the basic tool for managing has around a kind of obscurantism especially in the case of Sweden, where budget information is practically nonexistent. The figures obtained were collected through data from the European Commission and was almost impossible to find data that might not come from European funds. Regarding to Spain, the difficulty was found in the funds distribution as well as the competence situation among the regions. By analyzing data, if we take into account the expected annual cost of the network in both countries, we can realize that Sweden would have much lower costs than Spain (€ 192,7 million/year against € 1.300 million/year). The explanation is really difficult because of the lack of more details on the data. Perhaps it could been explained in some way when I commented that the vast majority of the largest Natura sites consisted on old forests in mountainous areas, without a strong economic or social pressure also most of them belonging to the Protected Natural Areas as nature reserves, national parks etc. where the activities inside are much more restricted and therefore are not excessive threats that put a risk its conservation and the management does not need be very intensive. Hence the largest percentage of spending could be directed allocated toward the "small" sites in central and southern Sweden. To explain the reasons in the case of Spain I have considered as the more important factors:

- The large area provided to the network.
- The fragility of Mediterranean ecosystems.
- The habit acquired and accepted "normality" of the subsidies receipt.

It is also relevant the fact that most of the Life projects in Sweden are being developed in southern Sweden, where there is less contribution of Natura sites, but where most of the population and stakeholders live.

The social aspect of Natura 2000 could summarize the essence of its development in both countries. Sweden is characterized by a strength communication between the Administration and stakeholders. This explains the virtual absence of debate about the nature network, except in the beginning, when the methodology that would be used for the designation of protected areas was unknown. The great economical and social importance at national level that exist in some part of Sweden (10 billion euro per year from forestry owned mainly by families) could have however too much influence in the network structure (since the geographic distribution, Natura sites dimension up to the compensation system or conservation contracts).

In Spain the social reactions have been both against and in favor the Natura 2000 Network. Some of the different factors that caused movements against have probably been:

- Deficiencies in communication between the Administration and stakeholders throughout the process with the result of misinformation and misunderstandings.
- Including some of the Natura sites as the traditional Protected Natural Areas. That means that the stakeholders will have stronger restriction of activities and the pre-emption right by the Administration.
- Lack of information and allocation of compensatory measures because the management plans where will be regulated are still unfinished in most of the sites.

- Incorrect legislation that contradicts EU directives: the urban planning legislation prevents land uses that do are authorized by the European Union.

Something very positive is the fact that more and more social sectors affected are realizing the advantages that this network can give them. The possibility of a combination of traditional activities with others new such as organic farming or ecotourism is the best alternative to untie Natura 2000 acceptance from the subsidies.

Given the strong linkage that Spanish society has had to European subsidy policy in recent decades, and taking into account that these will be reduced dramatically over the coming years, is vital to ensure that alternatives such as these continue gaining strength.

In summary and in my personal opinion, I could say that both the organized and communicative Swedish process and the less organized and communicative Spanish one could have been improved in some aspects even been supplemented.

The very close relation with stakeholders may overshadow the ultimate goal of this network especially in the case of the tendency is over-permissiveness in the acceptance of stakeholders' demands and putting aside scientific criteria. But at the same time communication is essential and helps in the collaboration for nature conservation. Especially if we take into account that in Spain most of the Natura sites are located in socioeconomically deprived areas, where migration to cities is getting to be lost traditional practices that for centuries have been shaping ecosystems. And nowadays we want to preserve those ecosystems.

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Appendices

Appendix 1.

European Funds for financing of Natura 2000 through the integration option are:

- Structural Funds:
 - European Regional Development Fund (ERDF)
 - Social Fund (ESF)
- The Cohesion Fund
- The European Agricultural Fund for Rural Development (EAFRD)
- The Financial Instrument for the Environment (LIFE +)
- The 7th Research Framework Programme (FP7).

European Regional Development Fund (ERDF)

The ERDF, belonging to the structural funds should contribute to strengthening economic, social and territorial cohesion within the EU via the reduction of regional disparities and supporting the development and structural adjustment of regional economies.

Some of the objectives related to the environment that could assist in the financing of the Natura network are:

Within the convergence objective:

- Prevention, control and combating desertification.
- Help to mitigate the effects of climate change.
- Rehabilitation of physical environment.
- Promotion of biodiversity and nature protection.
- Aid for SMEs to promote sustainable production patterns through the introduction of cost-effective environmental management.
- Promotion of natural assets as potential for sustainable tourism development.
- Protection and enhancement of natural heritage in support of socioeconomic development.

In the regional competitiveness and employment objective:

- Development of infrastructure linked to biodiversity and investments in Natura 2000 sites, where such investments contribute to sustainable economic development and / or diversification of rural areas.
- Development of plans and measures to prevent and cope with natural hazards (such as desertification, drought, fires and floods) and technological.
- Protection and enhancement of natural and cultural heritage in support of socioeconomic development and promotion of natural and cultural assets as potential for sustainable tourism development.

In the European territorial cooperation objective:

- Promoting and improving the protection and joint management of natural and cultural resources and the prevention of natural risks.

European Social Fund

The European Social Fund is one of the structural funds, support policies and priorities aimed to achieve the full employment, improve quality and productivity at work and promoting social inclusion and cohesion

Cohesion Funds

Cohesion policy has as its main goal to support real convergence and reduce economic disparities and territorial. This is possible through co-financing investments and other measures in the countries, regions and zones less developed of the Union (with GDP per capita below 90% of EU average).

Some of the objectives related to the environment that could assist in the financing of the Natura 2000 Network are:

- Sanitation and water supply.
- Waste management.
- Prevention of risks including forest fires.

The programming of the Structural and Cohesion Funds will take place in three steps:

1st The European Council adopted the **Community Strategic Guidelines** on cohesion proposed by the Commission for funding.

2nd Member states develop national Strategic Reference Frameworks (NSRF) that define the strategy with thematic and territorial priorities, to contribute to Community objectives.

3rd Member states prepare **Operational Programs** (OPs) that define the specific activities under the ERDF (and under the ESF and the Cohesion Fund) at the level of member states.



Fig. 1. Steps in the programming of structural funds (ERDF, ESF) and Cohesion.

Source: own production

European Agricultural Fund for Rural Development (EAFRD)

Objectives:

- Improving the competitiveness of agriculture and forestry by supporting development and innovation.
- Improving the environment and rural areas through support for land management.
- Improve the life quality in rural areas and encouraging diversification of economic activity

In order to take benefit of these funds, member states should set up:

- National Strategic Plan (PEN): it contains the more generic documents.
- Rural Development Programme (RDP): it contains the specific documents for programming.



Fig. 2. Plans and programs to be developed by member states to receive funds EAFRD.

Source: own production

LIFE + Nature and Biodiversity

It is the financial instrument for the environment and is formed by three components: LIFE + Nature and Biodiversity, LIFE + Environment Policy and Governance and LIFE + Information and Communication.

The more suitable component to be considered for financing projects affecting Natura 2000 sites is LIFE+ Nature and Biodiversity.

Some of the specific measures planned to be funded by the Nature and Biodiversity component of LIFE + are:

- Operating activities of NGOs primarily active in protecting and improving the environment at European level and participate in the development and implementation of policies and legislation.
- Studies, analysis, modeling and scenario building.
- Monitoring, including forest.
- Training, workshops and meetings, including the training of agents participating in efforts to prevent forest fires.
- Information and communication, including awareness campaigns, and in particular, awareness campaigns on forest fires.

LIFE + Fund will act as a multi-annual programming organized by the Commission. The Commission will draft multi-annual **strategic programs** for the periods 2007-10 and 2011-13. These programs should define the main objectives and priority action areas for EU funds. Within this framework of multi-annual programs, the Commission publishes annual calls for project proposals. Member states receive and collect individual proposals and send them to the Commission. Finally, the Commission decides which projects should receive funds from the annual budget of LIFE +.



Source: own production

Fig. 3. Programming of LIFE+ funds.

Budgetary allocations of Life + between member states are determined by such criteria as population density, and the percentage of Sites of Importance under the Habitats Directive. These allocations will be calculated for the periods 2007-10 and 2011-13.

The 7th Research Framework Programme (FP7)

FP7 will support research in a range of subject such as the environment (Article 2 of Decision).

The key environmental issues under FP7 are:

- The prediction of changes in climate, ecological, terrestrial and marine systems.
- Tools and technologies to monitor, prevent and mitigate the pressures and risks that affect the environment, including health.
- Tools and technologies for environmental sustainability: natural and anthropogenic.

FP7 will cover the period between January 1, 2007 to December 31, 2013. The proposals for individual projects for FP7 are encouraged to invite researchers to submit project proposals for specific areas of the Framework Programme.

Information obtained from: *Financing Natura 2000. Guidance Handbook* realized by WWF for the Institute for European and Environmental Policy in 2007.

Appendix 2. Expected costs for Natura 2000 during the period 2003-2012

Table 3.2 Member States' Estimates: Anticipated Expenditure on Management of Natura 2000 Sites, Jan 2003 to Dec 2012
Costs in million Euro, total for 10 years

Country (4)	Number of Natura 2000 sites	Area covered by sites (ha) (1)	Management Planning and Administration	Ongoing Actions and Incentives (2)	Management Occasional Investments	Capital Total Cost for all Activities
Austria	182	1,365,000	92.65	306.34	176.04	575.02
Belgium (Wallonia)	243	220,000	18.20	87.60	52.50	158.30
Denmark (7)	254	1,168,939	8.67	208.73 (165-253)	68.32 (51-86)	285.72 (224-347)
Finland	1,832	7,465,400	58.00	177.00	297.00	532.00
France (3) (5)	1,226	4,696,900	618.72	271.77	585.00	1,475.49
Germany (3)	3,994	4,910,164	932.00	2,699.50	1,260.60	4,892.10
Greece	346	3,533,900	142.30	1,761.50	117.70	2,021.50
Italy	2,767	5,000,000	25.97	54.29	404.69	484.95
Netherlands	155	1,733,000	1.927	362.70	202.20	2,491.90
Portugal	89	1,956,993	15.25	113.00	140.00	268.52
Spain	1,564	11,811,474	1,659.40	8,260.50	3,080.20	13,000.00
Sweden	3,508	6,222,254	25.00	641.00	1,261.00	1,927.00
UK	800	1,311,500	59.39	305.03	139.50	503.91
TOTAL respondents	16,706	51,395,524	5,582.55	15,248.96	7,784.74	28,616.41
TOTAL EU-15		60,500,000 (6)				33,685.68

Average cost per year, in million Euro

3,368.57

Notes

1st Figures adjusted to remove double counting of areas covered by proposed Sites of Community Importance and SPAs, except in Denmark, Finland, Greece, Netherlands and UK.

2nd Figures for France, Portugal, Spain, Sweden and UK do not include aeri-environment costs, which may be significant.

Source: SEPA Final Report on Financing Natura 2000

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