

## 7. CONCLUSIONS AND RECOMMENDATIONS

Natural protected areas are the instruments having been most widely used and tried by government bodies from all over the world as tools for the conservation of nature. They can, therefore, be deemed to be the territories on which society can bring more pressure to bear in order to impose a criterion for the protection of natural ecological processes contrary to what happens in other territories where the exploitation and the artificial energy reversal take precedence. However, the current structure of the protected areas does not guarantee the necessary functional connectivity of the whole of the territory, which is the reason why it is necessary to deal with a new, more comprehensive approach. In view of the relevance of the area currently protected, as well as of the experience gained over the last decade in the planning and management of these territories, the goal is becoming important of setting in motion the process concerning the establishment of a conservation network or system by taking these areas as a starting point, rather than aiming at an excessively technocratic planning, failing to pay due attention to the complex reality of the multi-sectorial administration of the territory and to the diversity of conflicts of interests taking part in it.

The new approaches to the planning and management of natural areas must envisage the keeping of the natural and semi-natural ecosystems, by letting the goal of conservation of environmental goods and services that they provide society with, to become prevalent, and not only the conservation of species or that of unique or representative spaces.

The list of countries having set in motion the process of re - definition of their nature conservation systems is growing longer by the day. The ecological network approach entails moving into an active and determined strategy of integration of nature conservation goals, in the broad sense of the term, into the planning of the territory as a whole. All the initiatives have been developed as a response to the intensification of the use of the territory being the result of similar pressures, technological as well as economic. The fragmentation of the territory due to the break - up of the landscape mosaic, in the main, as a result of the

multiplication of large road and railway infrastructures and the intensification of ground uses, can only be solved through the cooperation between sectors and within the framework of an integrated planning system.

Paying exclusive attention to purely biological values may lead to the legitimisation of the accelerated exploitation of areas which receive less attention on the basis of these criteria as opposed to other, wider ones. The development of ecological networks as a nature conservation strategy does entail:

- The integration of the conservation goals into the agricultural, forest and tourist sectors.
- The development of instruments for their implementation, specially at a local level.
- The development of trans - border projects (between regions and between countries).
- The exchange of experiences and the divulgement of results.
- Supporting interdisciplinary research programmes.

The review of the experiences undertaken in Europe, America and Spain shows that, as a rule, all plans are at early development stages. The majority of initiatives started to develop in the mid - nineties. The legislation which includes the concept of ecological networks is only five years old, and its development plans are still in the first implementation stages. Therefore, the exchange of knowledge concerning the different methodologies and instruments becomes specially important. The main difficulties having been encountered by the countries which have set these strategies in motion seem to be shared by traditional conservation policies:

- Lack of political and social support.
- Opposition by agricultural sectors.
- Lack of integration of social and economic aspects into the design of networks.
- Lack of integration of local players into the implementation stage.
- Lack of budget for conservation objectives, compared to the funds made available to productive sectors.

Being faced with these problems, the opportunities are to be found in the growing planning experience at a regional and local scale, in the existence of reviews and research in the field of Landscape Ecology and in the potential to

increase the coordination across administrative borders, countries, regions and municipalities, as well as between administrative sectors, communities and social organizations.

Among the contributions made by Landscape Ecology towards the design of ecological networks, we can highlight the following ones:

- The landscape scale is the one which has proven to be the most appropriate to deal with the design of this type of networks. The keeping of the integrity and the processes supporting environmental goods and services requires of necessity the taking into consideration of the role of the different elements making up the territorial mosaic and that of its spatial configuration.
- Thinking of the landscape as a matrix made up of patches having different degrees of ecological maturity, being different with regard to their environmental qualities and to the organisms that they contain, the network would reflect the natural / semi - natural / intensive / artificial mosaic pattern better contributing to ecological integrity. We would, then, have to think of a hierarchy of processes in the territory, each one occurring in a certain spatial extension, rather than thinking of a network formed like a wire netting made up of knots and connections.
- The fragmentation of the landscape has been identified as one of the main causes of the loss of landscape integrity, which is why the conservation networks must tend to minimize their effects.
- The conservation of the heterogeneity of the landscape is of paramount importance in the keeping of biological integrity and diversity, and it has to be a key criterion in the design of conservation networks.
- To boost landscape permeability the role must be taken into consideration of all the elements that make it up: the patches, their spatial distribution, the different types of linear elements of the landscape, the unbroken corridors, as well as the existing barriers (e.g. large infrastructures, roads, dams, etcetera).
- The hedgerows and other vegetation lines have a proven function as biological corridors; therefore, their incorporation into the conservation policies must be deemed to be a priority.
- In the design of a coherent conservation network traditional agrarian landscapes become specially important because of their contribution to the heterogeneity of the landscape. The complexity of their structure, defined by the diversity of elements that make up their mosaic (hedgerows, stone walls, gallery forests, living fences, isolated trees, crops, grazing lands and

remnants of natural vegetation) and by a high efficiency in the use of energy and nutrients, justifies their integration into the definition of a nature conservation system. This is specially important vis - à - vis the trend towards the standardization of landscape resulting from the predominance of the ground uses being financially most profitable.

- The linear elements are usually taken into consideration only in a summary manner, or they are simply not taken into consideration at all, due to the difficulty which their inclusion in the wide territory research or planning works entails. Their study requires detailed prospection scales, for the dependence on the analysis scale becomes particularly important in the linear elements of landscape.

From the standpoint of the legal and administrative instruments being desirable for the enlargement of the conservation networks, we wish to draw attention to the following experiences already carried out in Spain:

- Legal support to the protection of linear structures, as it has been done in Extremadura, whose Act 8/1998 for the Conservation of Nature and Natural Areas does establish as a protection concept the ecology and biodiversity corridors, as well as the eco - cultural corridors, acknowledging, in particular, the role of the cattle tracks and other livestock ways as cultural structures of interest for the conservation of nature.
- The PEIN, Catalonia Natural Interest Area Plan, is an example of territorial sectorial plan placed within a higher sphere, the Catalonia Territorial Plan, in which the need is accepted of establishing a biologically coherent and technically operational network of areas.
- The integration of the definition of a protected area system into general conservation policies, as in the case of the Navarre Biodiversity Conservation Strategy.
- The recent review of the Andalusian network of natural protected areas as a prior step to the definition of a functional ecological network.

The definition of an ecological network must take current reality as a starting point, in other words, it has to assess the opportunities deriving from the current legal and territorial situation, thus to identify the weakest aspects in need of boosting.

Although the management of natural areas is carried out at a local or regional level, the natural area networks must become a part of larger scope networks

(e.g. Andalusian Network - Iberian Peninsula Network - European Network), by fostering the definition of interregional or cross -border areas and corridors.

The design of a conservation network should be based on a well - defined methodology making the comparison of scenarios possible, as well as the discussion among and the participation by the interested parties. Such a process should go through the current network's assessment stages (analysis of the role being played by the protected areas currently designated as such in the context of coherent functional systems and in the detection of shortages), the identification of objectives at a network scale by means of the preparation of a Master Plan, the assessment of the elements of the territory which can be incorporated into the network by means of a clear and quantifiable system of indicators and the identification of institutional and y and inter-sectorial coordination measures.

