NATURE PROTECTION AS A FORM OF CROSS – BORDER COOPERATION BETWEEN SERBIA AND NEIGHBORING COUNTRIES – STATE AND DEVELOPMENT PERSPECTIVES –

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Abstract: The legislative basis set system of nature protection in modern conditions of spatial development exceeds the limits of a single state entity. Unrestricted, often conflicting, national legislative restrictions and recommendations, the tendencies of the European scientific and technical thought, especially the practice of nature protection, increase of cross-border cooperation approach which encourages the creation of ecological networks and corridors, and other forms of bilateral and multilateral projects. Their main goal is the establishment of integrated protection of natural resources between separate administrative borders and long-term improvement of the quality status of basic values of the protected areas. Among the protected natural areas in Serbia some of them spatially and functionally gravitate towards the border territories. Involvement in international projects and initiatives such as the European Green Belt, Emerald network and Natura 2000 network supports the complex protection of natural resources due to their specific functionality which should not remain isolated process only within the borders of one state. This paper considers previous and present activities on the integrated nature conservation in the territories which by their geographic, biotic and ecological features and functionality are important for Serbia and its neighboring countries, as well as the perspective which contributes to the improvement of this cooperation.

1. INTRODUCTION

Due to the geographical position of Serbia with the territory which is situated on the contact of the southern part of the Pannonian plain and the Balkan Peninsula and also due to the complex influences of biotic and abiotic factors, the diverse and rich natural heritage was formed. The Balkan Peninsula is one of six centers of biological diversity in Europe, it is certain that the interest of preserving the natural heritage of this part of Europe overcomes national borders.

One of the specificities of territorial and geopolitical position of Serbia is the consequence of the fact that after the turbulent political events in South East Europe that took place during previous two decades, the territory of the sovereign state of Serbia is bounded by eight independent state entities. The complexity of the geopolitics of Serbia is reflected on the policy sphere which treats problems of environment and as part of it the issue of nature protection.

As the field of nature protection is regulated by national legislative documents at the territory of Serbia as well as in other neighboring states, possibility to establish uniform control measures and activities of the nature protection in reality is the task difficult to achieve. Disagreements also exist in the nomenclature of protected areas and criteria of definition and protection, between Serbia and its eight neighbors. Those are not the only proofs that the system of international environmental networks is the most realistic way to protect and promote natural heritage in the border regions as the common objective of cooperation.

This paper analyses current and planned state of cooperation on nature protection in the border areas between Serbia and its neighbors. Besides the presentation of current state, the objective of this paper is identification of bottlenecks concerning this topic.

2. CURRENT STATE OF NATURE PROTECTION IN SERBIA

Legally and institutionally organized system of nature protection in the territory of Serbia has a tradition that dates back in 1948. In the period of more than six decades, it has evolved in the direction of increased cover of protected natural assets, as well as the quality of organized protection measures. Current area concerned by the nature protection in Serbia is 5471.76 km² or 6.19% of the total area of the state. Based on data from the 2009 of the Institute for Nature Protection of Serbia, there are 415 protected natural assets, classified into three categories of protection. Besides them, different levels of protection include 46 IBA (Important Bird Areas) sites, 62 IPA (Important Plant Areas) and 40 PBA (Prime Butterfly Areas) sites (Стратегија просторног развоја Србије, 2009).

Current legislation in the field of nature protection for the territory of Serbia is regulated by the Law of Nature Protection (2009) (Закон о заштити природе Србије, 2009). That law is based on seven fundamental principles of protection and promotion of
nature (the high level of protection of nature and natural values, sustainability, implementation of measures and conditions of nature protection, integrated protection, the principle "user pays", cooperation and direct implementation of international law), the law clearly defines the objects and protected areas, criteria for their definition and categorization, permitted and prohibited actions and activities within the protected objects and areas and others.

![Fig. 1. Types of protected natural assets in Serbia](image)

The notion of the protected asset as the basic unit of nature protection, is in conformity with the current definition promoted by the International Union for Conservation of Nature (IUCN, 2008), which emphasizes that the protected area is "clearly defined geographic area or identified and reserved space which is managed through legal or other effective means, in order to achieve long-term protection of nature, the unity of ecosystem and cultural values." Therefore, in accordance with the new law, protection of nature in the territory of Serbia is legally updated by recommendations of the leading expert organization in this field. It can be expected that on the basis of innovative and directly focused on the Law of Nature Protection, in the forthcoming period, the process of protection will be adequately realized, not only in order to achieve the recommended standards of the protected natural area of 10% of the state. What is more important, it is the essential improvement of natural values protection which should provide conditions for their conditions for their development without functional isolation (Durdić, 2009).
3. PRACTICAL IMPORTANCE OF ECOLOGICAL NETWORKS FOR NATURE PROTECTION

The current system of nature protection in Serbia includes guidelines on the establishment of ecological networks that form the basis of international, especially cross-border cooperation, at the level of relevant expert bodies in this field. Law of Nature Protection in Serbia (2009) provides the establishment of ecological networks based on scientific criteria defined by international documents signed by Republic of Serbia.

Ecological networks refer to interconnected or spatially close ecological areas that allow free flow of genes and contribute to the preservation of natural balance and biodiversity. Parts of the network are connected to each other by ecological corridors regardless of the way they were created.

Scientific basis for the establishment of ecological networks are based on autecological, landscape-ecological, macro-ecological and biogeographic achievements. Theoretically ideal ecological network should connect those protected areas that will enable the sustainable survival of optimal habitats and their complex mosaics, to sustain at least one population of each species in the region. In the practice of nature protection the intention is to define the minimal size of the protected areas network based on the attributes of complementarity, flexibility, and irreplaceability (Meadows, 2001). It is certain that there is no universal model for choice of the protected area so that all taxa present in a region are protected, however it is possible to form the basis of criteria that lead to successful creation of protected areas network.

According to Cabeza and Moilanen (Cabeza & Moilanen, 2001) ecological network should include only sites that cover more than the minimum size required for the presence and survival of species, where population density as an indicator of sites quality, although commonly used parameter, is not the crucial one (e.g. species endemism certainly is not to be omitted). Besides, it is necessary to perform the dynamic analysis of the population vitality, in order to prevent their endangerment by appropriate protection measures. If the process of networking takes place on the protected areas macro-ecological level, then it would be desirable to form a network of protected natural areas on the principle of multiple representations of each biotic characteristic in a large number of networked sites. In scientific sense, particularly intriguing is the question of determining the optimal size of protected areas network. An open research issue is the process of networked areas definition if it includes the effects of unprotected neighbor habitats (or landscape matrix) on biotic processes within the protected area (Cabeza, 2003).

The importance of ecological networks creation is not justified only by complex ecological and biogeographic arguments. It is certain that the economic impact of nature protection is an integral element of decision-making in the process of protected areas networks definition. Examples of economic reasons as creation for compact reserves are not rare, because management costs of protected areas increase with the lengths of their borders, which is in relation with their area as well. In that sense, linking protected areas is usually based on the approach to the integration of protected natural areas that are already spatially close and thus the effect of decreasing the total length of the border is realized (Cabeza & Moilanen, 2001).

Ecological networks, in addition to the importance previously mentioned, have additional significance, in the context of the cross-border regions. On the basis of accepted
recommendations and criteria of international expert documents, existing differences between legal regulations of different countries can be overcome.

In addition to undoubted progress in the implementation and application of international documents, recommendations and initiatives, as well as concrete cooperation in the protection of nature, Serbia actively participates in several massive ecological networks established to protect biodiversity in Europe. Those networks or projects are the Green Belt, Emerald Network and Natura 2000. Multilateral cooperation between countries that are connected to these initiatives and projects is aimed at ensuring the protection of complex nature that "neutralizes" potentially diverse and conflicting national legislative policies in this field. Common denominators of these international initiatives are: provision of unique approach in the management of natural resources, coordination of protection regimes, measures and activities, provision of easier access to financial funds which support protection, but also exchange of expertise, achievements and human resources.

3.1. The green belt

Initiator and coordination institution responsible for implementation of ecological network "European Green Belt" is the International Union for Conservation of Nature (IUCN). Since 2004 when the idea emerged to create an ecological network with the system of protected natural areas in border regions on the territories of 22 countries, from Scandinavia to South East Europe, that network has not lost the characteristics of environmental actuality and dynamism. The initial vision starts from the goals of securing successful implementation mechanisms of leading initiatives in nature conservation in Europe, such as Natura 2000 and the Convention on Biological Diversity, which will not be an obstacle in linking activities of nature conservation with sustainable regional development, while at the same time they will contribute to improvement of cross-border cooperation in this area by distinction of ecologically important species and their habitats. The idea for networking of protected areas and those which haven not yet become protected according the national criteria, regardless of territorial affiliation, type of protected area and its surface, led to the initiation of some successful cross-border projects.

Tab. 1. Parts of the corridor SEE Green Belt which are included in system of nature protection in Serbia

<table>
<thead>
<tr>
<th>Cross-border area</th>
<th>Protected natural area</th>
<th>Current status of protection</th>
<th>Basic characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria – Slovenia, Croatia – Hungary - Serbia</td>
<td>Danube – Drava – Mura</td>
<td>Mura (AU) – Natura 2000, Mura (SLO) – proposed Regional park, Dunabe – Drava (HU) – National Park, Kopački rit (CRO) – Nature Park, Drava – Mura</td>
<td>More than 400 km of alluvial corridors of rivers Danube, Drava, Mura and wetlands and marsh lands</td>
</tr>
<tr>
<td>Region</td>
<td>Nature Protection Areas</td>
<td>Cross-Border Cooperation</td>
<td></td>
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<tr>
<td>Hungary - Serbia</td>
<td>Selevenjske pustare – Subotička peščara</td>
<td>Steppe and sandy habitats</td>
<td></td>
</tr>
<tr>
<td>Serbia - Bulgaria</td>
<td>Stara planina</td>
<td>High-mountain ecosystem</td>
<td></td>
</tr>
<tr>
<td>Albania - Macedonia - Serbia</td>
<td>Šar planina - Korab</td>
<td>High-mountain ecosystem</td>
<td></td>
</tr>
<tr>
<td>Montenegro - Albania - Serbia</td>
<td>Prokletije</td>
<td>High-mountain ecosystem</td>
<td></td>
</tr>
<tr>
<td>Bosnia and Herzegovina - Serbia</td>
<td>Tara – Drina - Javor</td>
<td>Mountain ecosystem</td>
<td></td>
</tr>
<tr>
<td>Croatia - Serbia</td>
<td>Sava – Spačva – Bosut</td>
<td>Unique forests of oak and hygrophyte vegetation</td>
<td></td>
</tr>
<tr>
<td>Croatia - Serbia</td>
<td>Danube – Fruška gora</td>
<td>Forest ecosystems of hilly and alluvial habitats and landscape with important elements of cultural heritage</td>
<td></td>
</tr>
</tbody>
</table>

Source/ Sursa: (IUCN, 2004)
Part of the European Green Belt which includes the Balkans and Southeastern European corridor covers 38 areas of different ecological and biogeographic characteristics, protection status, size of protected area, and of course, control measures and activities envisaged by national legislation. Table 1 gives an overview of parts of southeast European corridor "Green Belt" which connects to a unique entity border regions of Serbia and border regions which belong to majority of its neighboring countries.

As examples of successfully initiated cross-border cooperation projects that are already implemented in parts of the network are: the Danube - Drava - Mura, Selevenjske pustare – Subotička peščara and Stara Planina (the Balkan mountain).

Based on the area covered and number of countries participating in cross-border cooperation, space of alluvial corridor Danube - Drava - Mura is the most demanding networked protected area in this part of Europe. Unique wetland ecosystem - wetlands protected under national legislative norms in the territories of all partner countries. However, in order to distinguish sites within these natural areas that are of primary importance for protection, it is necessary to make detailed and complete inventory of living organisms, the number of populations, their habitats and represent all in maps. Only with the centralized expert plans and activities of this type the mentioned space could be included in some other significant European ecological network (e.g. EMERALD Network), or nominate this ecologically valuable area for MaB program Biosphere Reserve (a proposal already exists for nomination of this region with an area of 633,907.97 ha) (www.europeangreenbelt.org).

The territory of Selevenjske pustare – Subotička peščara is located in the extreme north of Serbia in the border zone to Hungary. It is subject of a successful international cooperation between Hungary and Serbia for more than a decade. Thanks to the "Green Belt" project, conditions are created for intensification of cooperation in order to protect the unique landscape units under sandstone and loess which extends on both sides of state border, it would expand from protected areas and landscape to the areas which were not under protection. Protection of these segments of Northern Bačka sands landscape would contribute to creation of a network of preserved habitats on the sand, and to the biodiversity Pannonian area (Butorac et al, 2002).

Cross-border cooperation in the protection of high-mountain area of the Balkan Mountain is another example of successful activities initiated within the network of "Green Belt". The Stara planina Nature Park is the largest protected natural area in Serbia. It covers the protected surface of 114,332 ha in Serbia. On the territory of neighboring Bulgaria, this area has been identified as one of the sites Natura 2000 as Western Balkan Mountain and Predbalkan. As the state border between Serbia and Bulgaria on the length of 318 km for the most of its part follows the Balkans Mountain ridge, without any doubt this high-mountain preserved ecosystem is often exposed to inconsistent management and protection measures. As a result, it is on the verge of ecological discontinuity. Activities in this area within the network of "Green Belt" start from the uncompromising implementation of the Convention on Biological Diversity by both countries. Based on national legislation, improvement of the ecosystems and landscape values protection of the Balkan Mountain and the development of the area, it is expected that sustainable ecological capacities of that territory are going to be coordinated between Serbia and Bulgaria (Мијовић, 2006).
3.2. The emerald network and natura 2000

From the aspect of active participation of Serbia in the European ecological networks, the Emerald Network initiated by the European Environmental Agency (EEA), has special significance because it supports activities to protect nature of states that have not yet joined the European Union. Based on the criterion provisions of the Bern Convention (The Convention on the Conservation of European Wildlife and Natural Habitats, 1979), Emerald network consists of areas with special interest for protection (Areas of Special Conservation Interest - ASCIs). These areas, essential for the survival of endangered and endemic species, contain important or representative sample of endangered habitat types and represent a significant area for one or more migratory species. As a constituent element of the ecological network, Serbia must identify in these protected natural areas specific measures of species and endangered habitats protection, migratory species with the same level of protection and species which use the territory for the breeding or resting. Serbia has been from 2005 the program participant for identification of sites that meet the criteria ASCIs. So far in this order 61 sites of the total area of 10,142 km² were identified, that is 11.48% of the territory of Serbia. Among these areas there are five national parks of Serbia, and all areas protected by the provisions of the Ramsar Convention (nine sites), and all other internationally protected areas (IBA, IPA and PBA) and the MaB program (Nature Park Golija-Studenica) (Стратегија проторног развоја Србије, 2009).

Areas identified under the EMERALD network represent the base for the designation of future Natura 2000 sites. Natura 2000 is a strategic document in the field of preservation of natural heritage and biodiversity for territories of member states of the European Union. It is based on the provisions of the Birds and Habitats Directives (1979, 1992) and implemented through the establishment of a network of protected natural areas. The main idea of this network is not the formation of strictly protected natural resources which exclude realization of development activities, but it aims at the ensuring of implementation and management of nuanced series of measures and activities that enable sustainability, both environmental and economic.
As in the surrounding of Serbia there are three member states of the European Union in which the process of sites identification based on Birds Directive (SPA) and the Habitats Directive (pSCI, SCI and SAC) have been completed, it is certain that the complex and challenging process of identification of these sites in Serbia, will be most demanding scientific and professional activity in the field of nature protection which it is facing in the forthcoming period.

Fig. 2. Distribution of Green Belt and Emerald network sites on the territory of Serbia
Distribuția arealelor Centurii Verzi și a rețelei de Smarald pe teritoriul Serbiei
For the purposes of this paper it is interesting to point out that among other countries that are neighbors of Serbia, and not EU members, examples of different stages of implementation of these principles can be recognized in the national policy of nature protection. The most significant progress towards establishing NATURA 2000 sites has been conducted in Croatia, which has identified and proposed 1137 species and areas of importance following the criteria of this network. In addition, on the territory of Croatia the National ecological network was created that covers 50.2% of the national territory (Smaragdna mreža u Hrvatskoj, 2006). Republic of Macedonia has identified only three sites of importance for the EMERALD Network (NP Galičica, Dojran lake and Ezerani), according to the Spatial Plan of the Republic of Macedonia (Просторен план на Република Македонија, 2004). Based on data published by the group of authors (Shumka et al., 2008) on the territory of Albania six areas of Emerald and 19 SPA areas are identified. Based on the Spatial plan of Montenegro until 2020 (Prostorni plan Crne Gore do 2020. godine, 2008), it is possible to conclude that all existing and planned national and regional parks are considered as potential points for ecological networks. Among them, in the context of cross-border cooperation with Serbia, only the area of the future national park Prokletije is an object of cooperation in a European ecological network. Comparable data for the area of Bosnia and Herzegovina are not available.

4. CONCLUDING OBSERVATIONS

As in all spheres of national development, isolationist policy in the field of nature protection that takes place without cooperation relations on various spatial levels and interest environment can not have meaningful results that meet the progressive goals. Relations of cooperation and joint implementation of ecologically justified and recommended measures and activities in the field of protection and management of natural heritage are the only guideline that can lead to their integrated conservation and improvement.

Common interest in multilateral cooperation concerning nature conservation is to reduce threats to the survival and the preservation of biological and landscape diversity and geodiversity. Enhancing resilience of biological and landscape diversity, and also the establishment of ecological coherence in the area of Europe, are not only of significance for the area of the analyzed countries, but for their successful implementation the pan-European interest is clearly highlighted.

Major obstacle to successful multilateral cooperation is represented by the uneven dynamics of implementation of protection principle and inclusion of the ecological network in the studied area. As Serbia is surrounded both by countries that are already EU members with the policy of nature protection harmonized with EU directives in this field, but also by the countries that are in various stages of applying for EU membership, the disparity and unsynchronized legislative basis in the field of nature protection, it will for long time represent a disturbing factor for the preservation and improvement of the status of protected natural areas in the region.
REFERENCES:


***(2004): Просторен план на Република Македонија*. Скопје: Министерство за животна средина РМ.


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