

## **Rusenski lom nature park – problems and opportunities for development**

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### **Abstract**

The article aims at analysing the natural characteristics, flora, fauna and tourist attractions in Rusenski Lom Nature Park. It presents the opportunities and goals for development of the park, classified by their priority in “main” and “secondary” goals. The article also makes an analysis of the problems for the park development.

**Key words:** *flora, fauna, tourism.*

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Rusenski Lom Nature Park is located about 20 km south of Ruse. The park is named after the River Rusenski Lom – the last right tributary of the Danube. On 26 February 1970 the region was declared a national park with area of 22,267 decares. The territory of the national park was located along the valleys of the rivers Baniski (Mali) Lom, Cherni Lom and Beli Lom. In 1986 the Commission for environment protection at the Council of Ministers put forward a motion for the addition of 27,362 more decares to the territory of the national park and in this way to make the territory of the park 49,362 decares. The borders of the park, which are also valid today, were adopted in 1989. The territory of the nature park is 3,260 hectares. An overall project was prepared in 1989 for the management of the territories included in the park.

The main role in the formation of the characteristic relief of the Danubian Plain is played by the formation of the Alpo-Himalayan mountain system. The Balkan Mountains are part of this mountain system. The folding of layers in the Earth's crust during the formation of the mountain range exerted pressure to the territories located near the emerging mountains. This is the reason for the emergence of a number of right tributaries to the Danube, which spring from the Balkan Mountains. This folding of the upper crustal layers also accounts for the

characteristic form of the river valleys in the Danubian Plain. It is believed that the modern Danubian Plain was the bottom of a water basin about 120 million years ago. After it ceased to exist, a number of sedimentary limestone rocks remained in its territory.

This accounts for the diversity of the relief of the Danubian Plain and in particular of the territories in Rusenski Lom Nature Park. A number of caves and other karst formations emerged. The territories with limestone base are characterised by exceptional diversity of the biological world.

Another reason for the diversity of the animated nature in the park is the specific climate of the region. The winter months are characterised by relatively low temperatures. Spring comes later than in other regions. The annual temperature amplitudes are higher than in other places at this geographic latitude. Summer is hot, and autumn is warmer than spring. Temperature inversion is observed in the region. The inversion finds expression in the fact that here winter temperatures are higher than those in the rest of the Danubian Plain, although the park is located in the more northern parts.

Due to the low altitude of the nature park, the flora is represented mainly by deciduous forests. The coniferous species are less common. The forest composition includes a total of 27 tree species. Of particular interest is the Oriental Hornbeam, as these are some of the northernmost parts of its areal of propagation. This species occupies more than  $\frac{1}{4}$  of the planted area of the park. Its root systems are of great importance against the erosion and soil destruction. Other common deciduous trees are the Christ's thorn and the acacia. In addition, here grow the species Turkey oak, Hungarian oak, sessile oak, downey oak, lime tree, sycamore, ash tree, walnut tree, black pine, maple, English oak, lilac, smoketree, hawthorn, manna ash, etc.

The latitude at which the park is located and the fact that this is one of the last places where wild nature typical of the Danubian Plain is preserved make the park interesting from a scientific point of view. The vegetation in the nature park is identified as forest-steppe type. This means that it is transitional between the forest regions characteristic of Western and Southwestern Europe and the territories with steppe vegetation, which are characteristic of Eastern Europe and the central parts of Asia.

In the territory of Rusenski Lom Nature Park is located the only habitat of Siberian polygala and Dieckian mullein in Bulgaria. The Siberian polygala has been observed

in the territory of Bulgaria only recently. In the country, the plant was observed for the first time in 1997.

The endemic species here are of special interest. One Bulgarian and five Balkan endemic plant species have been identified. A characteristic representative of the steppe plants is the European feather grass, which is one of the most common species in the nature park.

Although the main goal of the national park is the preservation of the diversities of deciduous ecosystems, the meadow plants present special interest. More than 700 species of higher plants have been identified in the meadows and lawns located in the park. Here can be seen a large number of species that are rare and in danger of extinction. A considerable number is that of plants that are enlisted in the Red Data Book of Bulgaria. The plant species and subspecies account for 30% Bulgaria's floristic wealth. 60-70% of the plant cover of the park is deemed of root type.

The fauna in Rusenski Lom Nature Park is very diverse. Among the invertebrate animals, of special interest are the Carpathian scorpion and the scolopendra. The insect species include lesser mantis, several rare and protected beetle species, such as stag beetle, European rhinoceros beetle, and great Capricorn beetle. The butterflies are represented by the scarce swallowtail, Death's head hawk moth, Old World swallowtail, clouded Apollo, etc. The region of the Lom rivers is declared an important place for the butterflies in Bulgaria.

The river is home to 22 fish species, and also of crayfish, snails and mussels. 10 more species of amphibians, of which 5 protected, and 19 reptile species populate the valley. Of special zoographic importance are the Kotschy's gecko, which is the only representative of the geckos in the country, and the sheltopusik, also known as European legless lizard. There are two tortoise species, Caspian whipsnake (large whipsnake), four-lined snake and Aesculapian snake, viper, and smooth snake. Recreational fishing is allowed.

The nature park is home to birds that are endangered in the entire Europe and this is the reason why the Lom rivers were declared an ornithologically important place. The numerous cavities, cornices, terraces, cave entrances and grounds create perfect conditions for rock-nesting birds, such as golden eagle, Egyptian vulture, long-legged buzzard, ruddy shelduck, saker falcon, common and lesser kestrel, rock dove, owl, alpine swift, etc. The combination of rocks, water, forest and meadows creates conditions for habitation of more birds such as lesser spotted eagle, hawk, European honey buzzard, tawny owl, long-eared owl, and herons. The forest

resounds with the songs of almost all woodpecker species. Of the identified over 190 bird species observed in the park, 110 species nest here. The others are migratory, wintering birds and incidental visitors. It should be noted that while in Middle Europe the black storks make their nests in old trees in the forests, in Bulgaria the nest almost exceptionally in the rocks.

Of the 90 mammal species in the territory of Bulgaria, 70 have been identified in the valley. They are a diverse group both in terms of habitat and lifestyle. Some are more or less connected with water – otter, muskrat, water vole, and Mediterranean water shrew. The majority, especially shrews and rodents, have a ground or semi-underground lifestyle, while others, such as the mole and the blind mole rat – entirely underground. The bats are connected with caves and crevices, some with tree hollows or various holes in residential buildings. The squirrel and the dormice lead a life in the trees, in recesses and holes, mostly with southerly exposure. The predatory mammals in the park are 12 species. 26 out of a total of 29 species of bats in Bulgaria have been identified here. The park is inhabited by 14 mammal species which are subject to hunting. Some of them are of proven qualities – red deer, roe deer, wild boar, wildcat and wolf.

The flora and fauna of Rusenski Lom Nature Park are complemented by historical and archeological landmarks, identified as 125 monuments of culture, with two National archaeological reserves such as the Rock-hewn churches near the village of Ivanovo being included by UNESCO in the World Heritage List.

The oldest traces of human presence date back to the Paleolithic Age. Remains from the antiquity have also been found. In many places there are traces of Thracian settlements and sanctuaries. The lands of the nature park became part of the Roman Empire in 1 c. AD. The main site from the late Middle Ages is the “St Archangel Michael” monastery, part of the “Rock-Hewn Churches” archaeological reserve in the village of Ivanovo. The number of the churches in the territory of the nature park is also big. The total number of the operational and non-functioning churches within the park is over 30. Here is located Cherven archaeological reserve in the town of Cherven and the only one operational in Bulgaria rock-hewn monastery near the village of Basarbovo – St Dimitar of Basarbovo.

Based on the aforementioned indicators of potential value of Rusenski Lom nature reserve, the goals for development of the park can be rated in terms of priority as

“main” and “secondary” goals. The main goals include the realisation of the following objectives:

- Preservation of the biological and landscape diversity;
- Preservation of the cultural and historical heritage sites;
- Harmonious fit of the infrastructure in the cultural and archaeological and the natural environment;
- Improvement of the specialized safeguarding of the nature park;
- Achieving a balance between environment protection and use of resources;
- Generation of income by the municipalities as a result of the capacity and advantages of the nature park.

To achieve the main goals, it is necessary to fulfil the following secondary goals:

- Development of the research activity;
- Increasing the environmental culture of the young generations and forming behaviour of environmental protection in the population;
- Provision of opportunities for development of sustainable tourism and recreation;
- Increasing the public’s level of awareness.

The limitations to achieving the main and the secondary goals can be overcome by introducing suitable mechanisms. The problems for the development of the park are classified as problems of environmental character and problems of anthropogenic character.

The problems of environmental character are as follows:

- The global climate warming – it has an unfavourable effect on the diversity of the species and the resources;
- Succession processes leading to a change in the conditions of the habitats and the species composition;
- Destruction of the environment of the monuments of culture and the unique mural decoration of their interior.

The problems of anthropogenic character occurring inside the park are as follows:

- The limiting tendencies for the quality of management are the actually hampered coordination of several administrative outfits managing different sites, property, operations and functions in one and the same territory – the Rusenski Lom Nature Park directorate, Dunav state-owned game-keeping administration in Ruse, Regional Historical Museum in Ruse, the municipal administrations in Ivanovo, Vetovo and Tsar Kaloyan;

- Tendencies towards increasing the size and deteriorating the technology of using the forest resources. The regeneration cuttings have been carried out in larger areas by the effective legislation. Performance of unplanned cutting, reconstruction of areas occupied by local species. The new afforestation in the recent years has been carried out with foreign species;
- Tendencies related to changes in the ownership of the forests and the lands and converting meadows into arable lands. Lack of supporting measures for the meadows and pastures;
- Limiting tendencies towards changes in habitats of the species as a result of anthropogenic activity. The river terraces of the Mali, Cherni, Beli and Rusenski Lom at different places are subject to compaction, ploughing, unlicensed grazing, and excessive recreational load;
- The cases of poaching involve direct destruction and disturbance of animals and birds;
- Destruction of caves and rock formations. In the recent years, treasure hunting has caused irreparable damage to the territory of the park and the sites from the cultural and historical heritage. The old trends towards using the caves for economic purposes – shelters for domestic animals – have not been overcome;
- Tendencies towards breach of the established regimes in the zones of the park. Practicing tourist routes with larger groups and movement on unmarked routes;
- Limiting tendencies are the work in conditions of fluctuation of manpower, unoccupied permanent employments, which leads to insufficient staff expertise. Need for preparation of park security, combining the functions for security, monitoring activities and tourist guiding on the routes in the park.

The problems of anthropogenic character occurring outside the park are as follows:

- Processes related to use within the adjacent territories of the nature park, affecting the habitats and the species in the park, such as excessive grazing, cutting of high intensity, cutting of hollow trees, poaching;
- Pollution of the water courses running through the park with waste from the developing over the last years private petty stock-breeding in the farmyards in the villages in the adjacent territories of the park. Deterioration of the sanitary and hygienic conditions in the adjacent territories as a result of disposal of domestic and construction waste in illegal landfills;

- Limiting tendencies to the realisation of the main goals for generation of income for the municipalities as a result of the capacity and the advantages of the park are connected with the insufficient level of development of the services using the resources and advantages of the proximity to the Nature park;
- Lack of systematic and joint planning of the research activity in the protected territory between the BAS institutions, the universities and other scientific institutions.

The opportunities for development of Rusenski Lom Nature Park can be classified as follows:

- Opportunities for establishment of the park as a conservationally important site from the network of protected territories of international importance;
- Opportunities for holding environmental education programmes and training by age groups and interests – the wide range of opportunities can be determined in several basic groups – environmental education programmes of Ruse Youth Centre for Environmental protection, joint education programmes with the directorates of other parks in Bulgaria for information of the young generation, training of local people for development of environmental projects in compliance with the requirements of national and international funding programmes, training of farmers in the principles of environmentally-friendly agriculture and management of the agricultural lands in the park;
- Opportunities for research activities and implementing monitoring programmes;
- Potential opportunities for development of tourism and other recreation activities on a local, national and international level. They include development in the following main areas – natural environment with cultural, historical and archaeological landmarks of global importance and opportunities for visits through specialised routes connecting places of biological diversity, cultural and historical heritage sites, tourist sites and panoramic view platforms. Here can be included the development of folklore celebrations and events, cultural events based on the already held cultural celebrations, singing and instrument playing competitions. The morphological peculiarities of the region are the main prerequisite for development of trekking, bicycle tourism and horse riding. There is a need for specialised routes for people with disabilities. There are opportunities for development of sport activities such as rock climbing, cave tourism, bungee jumping, adventure routes with kayaking on the Cherni Lom and combinations with other sports;

- Opportunities of the nature park for sustainable use of the natural resources;
- Opportunities as a source of income – the park has the potential to generate income both for the individual owners and users and for its Directorate. The revival of old handicrafts, demonstration workshops and production of biological produce included in the tourist service system, as well as the development of rural tourism are part of the activities that can generate income both for the owners of forests and lands and for companies in the field of tourist service. The opportunities for financial earnings of the management and administrative bodies of the park are income from fees, renting out, production and sale of souvenirs, sale of promotional materials, intermediation and consultancy provided by the Directorate in the field of tourism, training in environmental subjects, sponsorship from commercial companies, donations, etc.

### **Conclusion**

In conclusion, the advantages for development of the tourist resources in the park should be highlighted:

- The park has a diverse and beautiful landscape - rivers, meadows, rocks, and forest;
- Rich biological diversity – exceptionally rich avifauna;
- Rich cultural and historical heritage – sites of global and national importance;
- Very good location and accessibility to all tourist sites in all seasons;
- Accumulated experience from the international hunting tourism – facilities, service, personnel;
- Opportunity for development of ecotourism and special interests tourism;
- Population's willingness to develop international ecotourism.

### **References**

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