

## Initial activities for candidature the Djerdap area (North-Eastern Serbia) as potential member of the UNESCO Global Geoparks Network

### Първоначални дейности за кандидатурата на Джердап района (Североизточна Сърбия) като потенциален член на Глобалната мрежа от геопаркове на ЮНЕСКО

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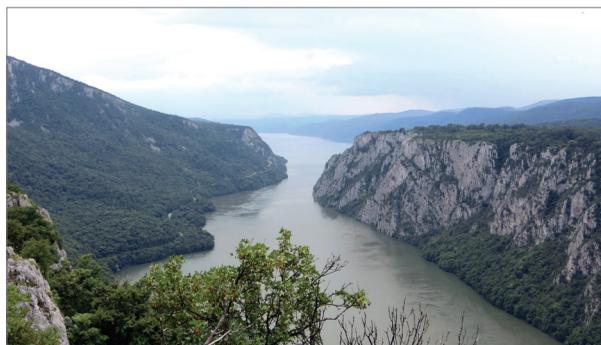
#### Introduction

One of the most important international initiatives in the field of geoconservation was the establishment of the UNESCO geoparks: the European Geoparks Network (EGN) and the Global Network of National Geological Parks (GGN). Geopark is a territory with clearly defined boundaries for protecting and promoting not only the geoheritage objects, significant for science, education, culture and tourism but also all other natural and cultural-historical values (Maran, 2010). In geopark, activities are oriented towards exploring natural and cultural resources through geotourism development, aiming to enhance the socio-economic status of local community, stimulate its economic growth, and advance conservation of the tangible and intangible heritage (Maran Stevanović, Mladenović, 2016).

The proposed Geopark is positioned in the North-Eastern Serbia, along the border with the Republic of Romania. The total administrative territory of the geopark is 1330 km<sup>2</sup>, which includes also the area of National Park Djerdap, established in 1974. The name of the proposed geopark is Djerdap (in Serbian: *геонарк Ђердан*), which derives etymologically from the old Persian word *girdap*, denoting a whirlpool. The main and the most remarkable natural feature is the Danube River with its gorge (Djerdap or Iron Gate, Fig. 1). It is the longest and the largest incising gorge in Europe that entails four smaller canyons and three valleys among them. Within the length of 100 km, on its way from Golubac to Kladovo, the Danube River incises the South Carpathian's rim and connects the Pannonian basin on the West and Dacian basin on the East. Along the Djerdap Gorge, rocks from almost all periods of geological history are exposed, from the Proterozoic to Recent. The left river bank, on the Romanian side, constitutes the Natural park Portile de Fier (Iron Gate).

#### Synergy of geodiversity, biodiversity, culture and tradition

From geological point of view, the area of proposed geopark belongs to two out of the six major geostructural units in Serbia, the Carpathian-Balkanides and Dacian basin. The oldest rocks belong to the Late Proterozoic amphibolite and green schist facies. Paleozoic units consist mainly of the Lower Cambrian volcano-sedimentary rocks, Silurian and Devonian clastic rocks, Carboniferous marine and continental deposits as well as Permian conglomerates, red sandstones and shales. As the most widespread of all deposits, Mesozoic formations include the Jurassic limestones, marls and cherts, huge Lower Cretaceous carbonate complex and thick Upper Cretaceous volcano-sedimentary rocks. Marine-brackish sediments were formed within the small isolated basins during the Miocene while the Quaternary facies are composed of lacustrine and river sediments, delluvium-alluvium and cave deposits.



**Fig. 1.** View to the Djerdap Gorge from the site Ploče (Photo: A. Maran Stevanović)

Local flora and fauna are directly controlled by distinct underlying rocks and soils, which predisposed also their richness and diversity. There are more than 50 species of forests and shrubs as well as several Tertiary relics, which represent not only the natural values and rarities but also an ornament of the entire Djerdap Gorge. Approximately 150 bird species are reported in the area. The presence of golden eagle, short-toed snake eagle, white-tailed eagle, black stork and grey heron has particular significance for their survival require specific habitat conditions. The mammals include a great variety of taxa, but the most important ones are the brown bear, wolf and otter assigned the category “vulnerable species”, according to the IUCN.

The proposed area comprises valuable cultural-historical monuments from the Mesolithic Period to modern times. The main and the most famous representative of Serbian cultural patrimony is the Lepenski Vir archeological site, which dated back approximately to 9500–5500 years BC. The Danube riparian area was an important trade route between western and eastern territories from the beginning of first century AD. One of the oldest material evidences is the Trajan’s Plaque (*Tabula Traiana*), which marks completion of construction of a river bank road and the enthronement of the Roman emperor Nerva Trajan in the sector of the Lower Danube. The Djerdap Gorge is certainly recognized among visitors by the remains of Golubački grad, a medieval fortified town positioned at its entrance, as well as Fetislam, the Medieval Fortress, situated at the exit of geopark.

### **Initial activities for the establishment of Djerdap geopark**

The foundation of geopark is a long-lasting process, which consists of planning, organization and implementation of various activities and actions. The initial phase involves defining the geopark area and its boundaries, establishment of an appropriate management structure, expert teams, scientific researches,

cooperation with representatives of local authorities, local communities and local private sector, creation of programs in the field of protection of tangible and intangible heritage, preparation of action and financial plans and provision of financial resources for the implementation of planned activities.

### **Geotourism and geoeducation**

There is a great capacity for the area to be a unique outdoor classroom as open-air laboratory-museum where geological and environment-related knowledge can be delivered in exciting and engaging ways. The main objective is to achieve real sustainable development of the area mainly through various geotourism activities as our geopark concept offers many opportunities for visitors to see, walk through, learn and enjoy one of the geologically, historically and culturally richest areas in Serbia. One model is different geotrails, intended for wide public. Several on-site presentations with various topics, including geology, biology, ecology and archaeology (e.g. thematic trails “Listening what the rocks can tell us”, “Vanished World of Djerdap”, “Journey with the Birds”, “Searching for Flora and Fauna”, “Lepenac – the man from whirlpool”) are planned, aiming to provide holistic approach to the nature. In direct and active contact with natural environment, it is expected that visitors become familiar with underlying rocks, local plants and animals and their habitats, thus understand the interaction between inanimate and animate nature.

### **References**

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