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**Rapid assessment of the  
Ecological Value of the  
Bojana-Buna Delta  
(Albania / Montenegro)**





# Rapid assessment of the Ecological Value of the

## Bojana-Buna Delta (Albania / Montenegro)

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**Front cover picture:** In the foreground, part of Ada Island in Montenegro; in the centre, the main Bojana-Buna bifurcation branch, with Franz Joseph Island and Velipoja Reserve; in the background, the Kolaj karst chain in Albania (Photo: M. Schneider-Jacoby)

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## Glossary/Acronymes

<b>alkaline</b>	the adjective alkaline is commonly used in english as a synonym for basic, especially for soluble bases (pH greater than 7)
<b>APAWA</b>	Association for Protection of Aquatic Wildlife in Albania
<b>barrier island</b>	ridge of sand that runs parallel to the main coast but is separated from it by a bay or lagoon. Barrier islands range from 10 to 100 kilometers in length and from 2 to 5 kilometers in width. A barrier island may be as high as 6 meters above sea level. Barrier reef a long, narrow reef that runs parallel to the main coast but is separated from it by a wide lagoon. <a href="http://college.hmco.com/geology/resources/geologylink/glossary/b.html">college.hmco.com/geology/resources/geologylink/glossary/b.html</a>
<b>bp</b>	breeding pair(s)
<b>brackish water</b>	water that is saltier than fresh water, but not as salty as seawater: brackish water contains 0.5 – 30 grams of salt per litre
<b>brine</b>	a strong solution of salt and water: brine contains more than 50 grams of salt per litre
<b>CZIP</b>	Centre for the Protection and Research of Birds of Montenegro
<b>Euronatur</b>	European Nature Heritage Fund
<b>Franz Joseph Island</b>	Ishulli Franc Jozef
<b>fresh water</b>	is water with less than 0.5 gram dissolved salt per liter
<b>fusha</b>	field

<b>IBA</b>	Important Bird Area
<b>intertidal (zone)</b>	area lying between the high and low tide marks (Sadoul <i>et al.</i> 1998)
<b>IWC</b>	International Waterbirds Count (IWC), organized by Wetlands International
<b>IUCN</b>	The World Conservation Union
<b>jezero</b>	lake
<b>karst</b>	terrain with special landforms and drainage characteristics due to greater solubility of certain rocks in natural waters than is common. Derived from the geographical name of part of Slovenia (a Slovene/German word). <a href="http://www.werple.net.au/~gnb/caving/papers/jj-cakt.html">http://www.werple.net.au/~gnb/caving/papers/jj-cakt.html</a>
<b>kneta</b>	marshland
<b>liqeni</b>	lake
<b>livadh</b>	pasture
<b>MP</b>	Management Plan
<b>polje</b>	a large closed depression draining underground, with a flat floor across which there may be an intermittent or perennial stream and which may be liable to flood and become a lake. The floor makes a sharp break with parts of surrounding. <a href="http://www.werple.net.au/~gnb/caving/papers/jj-cakt.html">http://www.werple.net.au/~gnb/caving/papers/jj-cakt.html</a>
<b>Ramsar Convention</b>	intergovernmental treaty concerning wetlands of international importance; signed in Ramsar, Iran in 1971.
<b>salinas</b>	wetland which has been transformed by man for economic reasons, e.g. production of salt. Many different terms in English like man-made salterns, salt ponds, solar saltworks, salt pans etc. are used as synonym to describe salinas.
<b>saline water</b>	is water that contains a significant concentration of dissolved salts: saline water contains 30 – 50 grams of salt per litre
<b>salinity</b>	the total concentration of soluble salt
<b>salt-pan</b>	a shallow basin used to concentrate sea-water and the precipitation of salt (Sadoul <i>et al.</i> 1998)
<b>Solana Ulcinj, Solana</b>	Ulcinj Salina
<b>roost</b>	a place where birds sleep
<b>wader</b>	wading birds of the order Charadriiformes
<b>WPE3</b>	Wetlands International (2002): Waterbirds Population Estimates – Third Edition. Wetlands International Global Series No. 12., Wageningen, The Netherlands.
<b>WPE4</b>	Wetlands International (2006): Waterbirds Population Estimates – Fourth Edition. <a href="http://www.wetlands.org/getfilefromdb.aspx?ID=832cc151-2de7-4f2e-9a05-41de0aec8594">http://www.wetlands.org/getfilefromdb.aspx?ID=832cc151-2de7-4f2e-9a05-41de0aec8594</a>

Water salinity based on dissolved salts in grams per litre				
fresh water	brackish water	sea water	saline water	brine
< 0.5	0.5 – 30	ca. 30	30 – 50	> 50



# 1 Acknowledgements

In 2002, Euronatur visited the Bojana-Buna Delta for the first time during preparation of the DEG Regional Master Plan for Tourism. During this first visit already the overwhelming diversity of this part of the Adriatic Coast impressed the experts. We thank DEG for financing this first visit and the flight over Lake Skadar/Shkodra and the coast in the community of Ulcinj.

To back up the proposal for a protected area at Velika Plaza, put forward by DEG as part of the sustainable tourism development, it was necessary to gather more data and cartographic materials for the whole transboundary coastal area. We thank the MAVA Foundation for the grant that enabled us to start the Rapid Assessment of the Ecological Value of the Bojana-Buna Delta.

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## 2 Abstract

The 250 km<sup>2</sup> lowland area, interrupted by 115 km<sup>2</sup> karst hills between Lake Skadar and the Adriatic Sea, was named Bojana-Buna Delta after the river that constitutes the border between Albania and Montenegro. The coastal zone between the two countries is characterised by a thirty kilometre wide natural dune area connected with the brackish and fresh water habitats along the Bojana-Buna River. The coastal area, including the riverine corridor, has not been developed, as it was situated behind the Iron Curtain. Border crossings were closed for over forty years. A rapid assessment carried out in 2003 and 2004 identified the great ecological value of the coastal zone at the border. 15 priority areas for protection have been identified, based on their vegetation and their functions in the habitat network. In particular birds, were used to evaluate the importance of the area for conservation and to describe the connectivity of different habitats. The Rapid Assessment will enable the great importance of the Bojana-Buna Delta for breeding, migrating and wintering birds to be documented.

The ecological value of the Bojana-Buna Delta is also illustrated by observations of some rare mammals like Brown Bear *Ursus arctos* at the beach in Albania and Bottlenosed Dolphin *Tursiops truncatus* in the Bojana-Buna River. Published data by Krystufek (1994) and Krystufek & Macholan (1998) indicate that the barrier island of Velika Plaza is an outstanding European island habitat, as two new subspecies of mammals were found here. More research is needed to understand the biogeographic importance of the Bojana-Buna delta, and not only for mammals.

The Rapid Assessment proposes a transboundary protected area, "Marine Park Bojana-Buna Delta", as the basis for sustainable regional development. The proposed zoning is based on the UNESCO Biosphere Reserve guidelines. Besides the natural value of the area, development options for some settlements in the Bojana-Buna Delta are briefly described. The Rapid Assessment also includes a description of old breeds of domestic animals that we have found in the area. Both the description of key features for further development of the settlements and the first evaluation of the agrodiversity demonstrate the interest of Euronatur and the team members in a sustainable economic development in the Bojana-Buna delta. The proposed marine park would provide the transboundary area of Ulcinj and Velipoja between Skadar Lake and the Adriatic Sea, with the necessary infrastructure for rural development.

### 3 Introduction

In the Mediterranean region the coverage of the marine and coastal habitats by protected areas (1 % and 3 % respectively) is insufficient (Lopez Ornat & Correias 2003). Based on the Regional Master Plan for Tourism for Croatia and Montenegro and the Regional Master Plan for Ulcinj (DEG 2003), the harmonisation of touristic development and protection of its natural resources by the establishment of core protection areas is an important precondition for the development of tourism in the Bojana-Buna delta. Because data on biodiversity and land use were insufficient to define protected areas, Euronatur started a Rapid Assessment of the Ecological Values in the delta.

Many deltas in the Mediterranean region have been described as priority sites for establishing Marine Protected Areas. According to international studies, information on the value of the joint Albanian and Montenegrin coastal areas is sparse or even completely lacking (Kelleher, Bleakley & Wells 1995). No proper assessment of the whole complex of wetlands in the Bojana-Buna Delta was available before this study was started. Based on the old descriptions of Reiser and Führer (1896), it was obvious that the Bojana-Buna Delta was one of the hotspots for bird and nature conservation on the Adriatic coast. Some recent publications have confirmed the continuing value of these coastal areas (Puzovic *et al.* 1992) and the great article of Puzovic (1994), in which the Ulcinjsko Primorje (Riviera of Ulcinj) was identified as the core area for bird diversity in the former Yugoslavia.

Recent changes have obviously had an impact on the numbers of birds in the Bojana-Buna Delta. This is obvious from data published by BirdLife International (Grimmett & Jones 1989) and the Albanian reports on impacts on coastal lagoons (Tekke 1996). Numbers of breeding birds in the hardly accessible border area and wetlands along the Bojana-Buna river were much greater during the 1960s and 1970s, when up to 2000 pairs of Pygmy Cormorants *Phalacrocorax pygmeus* bred along the Bojana-Buna river (I. Ham in Grimmett & Jones 1989).

The objectives of the Rapid Assessment of the Ecological Value of the Bojana-Buna Delta (Albania/Montenegro) were as follows:

- To describe the landscape and its natural values by field surveys and satellite images, including the preparation of a habitat map for the whole transfrontier area and its buffer zones, including all important wetlands.
- To evaluate the ecological value of the area by mapping nesting, foraging and resting sites for birds, to quantitate the populations of waterbirds in the Bojana-Buna Delta by an international team of experts over one year, and to collect additional information on landbirds, flora and other wildlife in both countries.

- To make a preliminary identification of the major threats impacting on the biodiversity of the area.
- To prepare a first proposal for the development of a transboundary protection area, incorporating rural development and the tourist sector.

Work on this draft was finished in the summer of 2004. Additional notes were added in August 2006.