

Additional information

General overview of the site

Neretva and its tributaries are exceptionally rich in fish species. Out of almost 150 species that use watercourses and/or estuary in some stage of their life, 49 are freshwater fishes and out of them even 19 are endemic for Eastern Adriatic catchment area while 4 are endemic for Croatia. Due to its high biological production, the Neretva mouth is a feeding ground for many kinds of fish. The delta, lagoons and bodies of brackish water present spawning sites and nurseries for fish and crayfish which spend the rest of their lives in fresh or salt water. These waterbodies are important for many species concerning their migrations, like the European eel (*Anguilla anguilla*).

Neretva Delta is surrounded with karst hills rich with underground water that supplies numerous springs, streams and lakes. More than 80 registered caves and other underground habitats in these karst surroundings are home for rich fauna with many threatened and endemic taxa. Especially important are underground species dependent on water habitats like the olm (*Proteus anguinus*), Dinaric cave clam (*Congerina kusceri*) and Dinaric tube-worm (*Marifugia cavatica*).

Due to very specific way of life of local people who have co-existed with the wetland through centuries, Neretva Delta represents the unique landscape in Europe. It is characterized by diversity of wetland habitats mixed with agricultural land surrounded by karst hills as well as with the sea at the river mouth. The area is inhabited and includes three towns and several small settlements.

Agricultural land was traditionally created through the process of digging canals and making small land plots with excavated wet soil on its top. Farmers are moving between the parcels and through the marsh in traditional small boats ('trupa' and 'lađa'). Besides such traditional agriculture landscape, there are large complexes of intensively managed agricultural land with plantations of tangerines and greenhouses with vegetables created after extensive land-reclamation works in 1960's.

Neretva Delta is also rich with cultural and historical heritage. This area was inhabited by Illyrian tribes even since the Iron Age. It is full of archeological remnants from pre-historical times as well as from times of ancient Greece and Rome.

Out of 12,742 hectares of the Neretva Delta Ramsar site in Croatia, five localities covering 1,724 ha are protected according to the Law on Nature Protection. They contain the best preserved remnants of formerly integral Mediterranean wetland. Besides these, there are more than 3,000 ha of wetland habitats that are still not legally protected. It is planned to protect Neretva Delta in category of nature park which is also in accordance with Physical Planning Strategy of the Republic of Croatia as well as the National Strategy and Action Plan for the Protection of Biological and Landscape Diversity («Official Gazette» no. 143/08).

Neretva Delta is a part of the wider transboundary wetland of the Lower Neretva valley that represents ecologically unique area. It stretches along final 30 km of Neretva River, from Hutovo Blato in Bosnia and Herzegovina to the river's mouth that branches into a wide delta. Lower Neretva valley covers some 20,000 hectares, out of which 8,000 ha belongs to Hutovo Blato and cca 12,000 to Neretva Delta. Hutovo Blato with its natural and artificial lakes hosts significant numbers of migratory and wintering waterbirds. It has been protected as nature park since 1995 and inscribed in the Ramsar list by B&H. Hutovo Blato and Neretva Delta should be evaluated as one integral transboundary Ramsar site because the same birds use both sites

during migration, wintering and even breeding. Some species breed in Hutovo Blato and feed in Neretva Delta, like the Pygmy Cormorant (*Phalacrocorax pygmeus*). Separate evaluation of two sites according to Ramsar criteria is difficult to make when it comes to numbers of regularly present birds. It would be more appropriate to evaluate both Ramsar sites together and treat them as one transboundary site.

General ecological features

1150 Lagoons / (X03 Brackish coastal lagoons) - Lagoons in Neretva Delta are important for wintering waterbirds and also as spawning areas and nurseries for fishes and other marine organisms. Water edges are covered with halophilous vegetation of *Bolboschoenetum maritimi* while their sandy bottom is covered with seagrass beds of *Coleogeto-Zannichellietum martimae*.

1310 Salicornia and other annuals colonizing mud and sand / (A2.551 [Salicornia], [Suaeda] and [Salsola] pioneer saltmarshes) - This vegetation is developed fragmentary on muds and sands in the river mouth. It includes As. *Salicornietum europaeae* and As. *Suaedo-Salsolietum sodae*

1410 Mediterranean salt meadows (*Juncetalia maritimi*) / (A2.522 Mediterranean [Juncus maritimus] and [Juncus acutus] saltmarshes) - Salt meadows of As. *Juncetum maritimo-acuti* develop on shallow muds and sands under the constant influence of salt or brackish water. It is dominated by the Sea rush (*Juncus maritimus*) and the Spiny rush (*Juncus acutus*).

1420 Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*) / (A2.52 Upper saltmarshes) - This saltmarsh of the shallow coast is represented on the river mouth with As. *Limonio-Artemisietum coerulescentis* with characteristic species the Common sea-lavender (*Limonium serotinum*) and the Sagebrush (*Artemisia coerulescens*).

2110 Embryonic shifting dunes / (B1.31 Embryonic shifting dunes) - Today only fragments of this habitat type of psamphytic vegetation (As. *Echinophoro-Elymetum farcti*) remained on the river mouth.

3130 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea* / (C3.4 Species-poor beds of low-growing water-fringing or amphibious vegetation) - This is the most endangered habitat type in Neretva Delta, developing on wet meadows, mud coasts or along the small waterbodies (pools, lake coasts) that are left without water during the dry period. Associations of the alliance *Fimbristylion dichotomae* (*Cypero-Paspaletum distichi* and *Dichostyli-Fimbristyletum dichotomae*) are especially valuable because of their rare and threatened plants, e.g. the Lesser water-plantain (*Baldellia ranunculoides*), the Flat sedge (*Blysmus compressus*), the Yellow flat-sedge (*Cyperus flavescens*), the Brown galingale (*Cyperus fuscus*), the Galingale (*Cyperus longus*) and others.

3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp./

C1.25 Charophyte submerged carpets in mesotrophic waterbodies - This submerged vegetation of freshwater lakes is represented with associations *Charetum fragilis* and *Charetum vulgaris*.

3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* - type vegetation / (C1.3 Permanent eutrophic lakes, ponds and pools: C1.32 Free-floating vegetation of eutrophic waterbodies and C1.33 Rooted submerged vegetation of eutrophic waterbodies) - On eutrophic water bodies in Neretva Delta several associations are included with dominance of different duckweeds (*Lemnaceae*) or with the European frogbit (*Hydrocharis morsus-ranae*): *Lemno-Utricularietum vulgaris*, *Lemnetum trisulcae* and *Hydrocharietum morsus-ranae*.

92D0 Southern riparian galleries and thickets (Nerio-Tamaricetea and Securinegion tinctoriae) / F9.31 [Nerium oleander], [Vitex agnus-castus] and [Tamarix] galleries - This habitat type is represented in Neretva Delta only locally, in small patches. As. *Periploco-Viticetum agni-casti* is distributed in transition zone between the marsh and terrestrial vegetation while subendemic Adriatic As. *Vitici agni-casti - tamaricetum dalmaticae* is present in upper coastal area. Karstic hills surrounding the Delta or popping up from it like solitary hummocks include following NATURA/EUNIS habitat types: 6220* Pseudo-steppe with grasses and annuals of the Thero- Brachypodietea / E1.3 Mediterranean xeric grassland; 62A0 Eastern sub-Mediterranean dry grasslands (Scorzoneratalia villosae) / E1.55 Eastern sub-Mediterranean dry grassland; 8310 Caves not open to the public / H1.1 Cave entrances and H1.2 Cave interiors; 9320 Olea and Ceratonia forests / G2.4 [Olea europaea] - [Ceratonia siliqua] woodland; 9340 Quercus ilex and Quercus rotundifolia forests / G2.12 (d) [Quercus ilex] woodland.

Apart from these habitat types of European conservation interest, the Neretva Delta contains other habitat types according to EUNIS classification (based on Alegro, 2010 and Jasprica&Kovačić, 2005). Important for maintaining wetlands are waters with fringe vegetation: C1 - Surface standing waters; C2 - Surface running waters and C3.2 - Water-fringing reedbeds and tall helophytes other than canes. The most widespread is water-fringing vegetation, including dominating reedbeds of As.

Phragmitetum australis distributed as the first vegetation belt along the water bodies. As. *Scirpetum lacustris* covers the deepest waters. Other associations of this vegetation include: *Scirpetum tabernaemontani*, *Bolboschoenetum maritime*, *Typhetum angustifoliae*, association with *Iris pseudacorus*, *Mariscetum serrati* (= *Cladietum marisci*), *Hydrocotyle-Caricetum elatae*, *Phalaridetum arundinaceae*, *Cyperetum longi* and *Sparganio-Cyperetum longi*. Vegetation of surface standing waters includes associations: *Myriophyllo-Nupharetum*, *Nymphoidetum peltatae*, *Potameto-Najadetum*, *Ceratophyllo-Potametum crispum* and *Potametum natantis*.

Besides water and water fringe vegetation, other EUNIS habitat types are represented with: F3.242 - Illyrio-Adriatic deciduous thickets; F6.3 - Illyrian garrigues; G1.D4- Fruit orchards; G1.73 - Eastern [*Quercus pubescens*] woods; I1.1 - Intensive unmixed crops; J1.2 - Residential buildings of villages and urban peripheries; J2 - Low density buildings and X0.7 - Intensively-farmed crops interspersed with strips of natural and/or semi-natural vegetation.

Physical features of the site

Origin: Neretva Delta was created during the last glacial period which had its maximum extent of glaciation approximately 18,000 years ago. In the period from 17,000 to 6,000 years ago the ice was melting intensively and accordingly, the level of Adriatic Sea was raised to some 120 m. The sea was gradually flooding coastal karst relief and the highest hills and mountains turned into numerous islands. Neretva River formed its course along the tectonic rift that stretches vertically to the line of Dinaric Mountains. The river mouth that used to be in the Adriatic, where the sea is 100 m deep today, moved with rising of the sea level. A deep bay was formed in this area, reaching today's territory of Bosnia & Herzegovina. The sea rising stopped some 8,000-6,000 years ago, enabling Neretva River to deposit its sediments, gradually filling-up the sunken karst depressions and forming the wetland. At parts more distant from the river, where sedimentation was not so high, marshes and lakes remained (Juračić, 1998).

Climate: The area has Mediterranean climate with mild, rainy winters and hot, dry summers. Here are some basic climate characteristics according to data of the Meteorological and Hydrological Service of Croatia. The air temperature has an average value of 14-15 °C. The coldest is December – February period with average temperature of cca 7°C, although temperatures can go down to -5°C or even below. The temperatures are highest in July (average cca 25°C) and August and can go over 40°C. Average annual precipitation ranges from 1,250-

1,500 mm. December is the rainiest month while July is the driest one with less than 200 mm. Humidity is highest in September, December and January (average 72%) and the lowest in July and August (average 54%). In Neretva Delta there are more than 2,400 sunny hours per year. Dominant winds are eastern (mostly during autumn and winter) and western ones, while the north and north-east winds are the strongest, blowing mostly in November-April period, often with the speed of 2.8-3.3 m/s.

Geology: Wider area of Neretva Delta belongs to geotectonic unit of Outer Dinarides (SINP, 2007). It is characterized by layers of Mesozoic, Cenozoic and Quaternary. Mesozoic carbonates form the outer rim of the Delta which was created as the part of several kilometers thick Adriatic carbonate platform. This platform resulted from intensive sedimentation of organisms in shallow and warm sea of that time. This marine area was changed in Tertiary when Dinaric massif mounted here, in the same time forming tectonic rifts stretching NW-SE. Neretva watercourse follows one of these rifts.

By the end of Tertiary karst depressions of Neretva valley were filled with lake sediments. The central part of Neretva Delta consists of Pleistocene sediments driven by the river, mostly of clay, pebbles and sands.

Geomorphology: Today's relief of Neretva Delta area is a result of tectonic movements, climate changes and sea level changes through geological history, that had influence on erosion and sedimentation processes. There are three characteristic morphological parts of Neretva Delta: marginal karst area, river valley and coastal zone. Karst hills that surround the valley are morphologically diverse and rich with different karst forms like karrens, sinkholes, pits and caves. The river valley is also sporadically covered with solitary karstic hummocks rising from alluvial sediments. The highest peak in the Delta is Mala Rujnica (598 m).

Soils: Hydromorphic soils prevail in Neretva Delta. Narrow zones along watercourses are covered with alluvial soils (fluvisol). Amphigley soils are represented in wider area, receiving water from rainfall as well as from underground water. Surrounding carbonate hills are covered mostly with calcicambisol ('brown' soil on carbonates) and mould ('black' soil).

Hydrology: Neretva River is dominant watercourse of the area. Its main characteristics in this final section are: average annual water level of 91 ± 13 cm (range 65-124 cm); average annual water flow of 269 m³/s (range 44– 2,179 m³/s); average annual water temperature near Metković being 11.9 °C (range 0 -26 °C). River has a high water level in winter, while during summer there is a lack of water. This is partly due to several hydropower plants upstream in B&H, which hold the most of Neretva waters with dams. In such situations when Neretva has a very small flow downstream of the dams, marine waters enter the river, spreading its influence upstream all the way to Metković (border with B&H).

Some 12 km from the sea, near the town of Opuzen, Neretva creates four branches – only these remained out of former 12 branches that formed the delta before melioration works in 1960's. Neretva has also several small tributaries in its lower part, the most important being the Norin River that flows through large reedbeds. The river mouth area is characterized with a large number of drainage channels that are often overgrown with marsh vegetation, representing favorable habitats for waterbirds. Along the edge of delta, there are many water springs coming out of karst underground. The right edge of delta, there are three groups of springs – altogether 50, receiving waters from rainfalls in watershed of Trebižat River in B&H and Vrgoračko polje in Croatia. The left edge has three groups with 68 springs that get water from sinking creeks of Popovo polje in B&H. From previously numerous lakes, today only five remained, the largest being the lake Kuti which is the only one not influenced by the sea. Lakes Vlaška and Parila are in fact lagoons as they are connected to the sea.

Water quality in Neretva Delta is threatened with non-purified communal waste waters as well as with pesticides and fertilizers from arable land. This pollution is partly coming from upstream area in B&H and partly is created in the Delta area. The large problem is high salinity

of the Neretva River due to strong influence of the sea. It results in salinization of adjacent soils and threatens agriculture. Salinization is especially strong in periods of low water level in the Neretva and its catchment area.

Physical features of the catchment area

The largest part of the Neretva catchment area is situated in B&H. Neretva River is 218 km long and its watershed spreads over 10,100 km². General geographical location, nearness of the Adriatic Sea and of the Dinaric mountains as well as differences in altitude of this area (sea level-Dinaric mountains) has an important impact on climate characteristics of this area. These facts have led to uneven and complicated temperature and precipitation regime. Regions located close to the sea have characteristics of Mediterranean climate (relatively high winter temperatures and low number of cold days). In regions distant from the sea and of higher altitude, there is a transitional climate type towards continental climate with longer and colder winters and shorter and fresher summers.

Waters of the Neretva catchment area have hydrological characteristics of karstic waters that often have intermittent surface watercourses as well as numerous sinkholes and underground watercourses. Main tributaries of the lower part of the Neretva are Trebižat, Bregava and Krupa. There are about 20 large and small karst fields in the area often lying in parallel on different altitudes. This enables a rhythm of appearance and disappearance of waters from field to field - water which dives into field sinkholes on higher level appears again in springs of lower fields. Upstream of the delta, Neretva flows through torrents being erosive watercourse in these non-regulated segments. Downstream of the Gabela settlement it changes into calm flow with meanders. This area of the Lower Neretva valley spreads downstream of mouths of Trebižat and Bregava rivers. On the left bank side there is a depression of Hutovo Blato where the Krupa River starts its flow.

In B&H five hydropower plants were built with large dams on Neretva and one in near-by area of Hutovo blato. They influence downstream Neretva flow and dictate its water level. During dry periods, usually in summer, there is a lack of water in this part of the river, resulting in its strong salinization due to the influence of the sea.

Neretva catchment area is closely connected to the Trebišnjica River catchment area in B&H. These are two largest neighboring watersheds on SW part of Dinarides. As the whole territory of two watersheds is karstic, it is filled with sinkholes, underground watercourses as well as with karst fields that are temporarily flooded. Waters of Neretva and Trebišnjica are interconnected through the karst terrain and it is difficult to divide their watersheds. Trebišnjica is mostly an intermittent watercourse with numerous sinkholes, underground flows and springs.

Ecosystem Services

Hydrological values:

Functions and values of Neretva River and adjacent wetlands in delta are numerous. Along the rocky and dry Croatian Adriatic coast, rich sediments of delta enabled development of intensive agriculture in the area, especially after meliorations in 1960's. Water is used for irrigation and for water supply of settlements. Wetlands along the river represent natural retentions flooded during high waters and have significant role in flood control. Additionally, there are many underground karst streams and springs in the surrounding limestone terrain that contribute to the water regime of the area. Diversity of habitats and species in this area depends on the water regime affected by the Neretva River.

Scientific research:

Many national and international projects have been implemented in Neretva Delta but they were mostly concentrated on CEPA activities while research work was done only sporadically. During the last decade research of certain NATURA 2000 species was done as the part of activities on preparation of Croatian proposal of EU ecological network NATURA 2000 organized by the Croatian State Institute for Nature Protection (SINP). EURONATUR collected data on winter bird counting for the whole transboundary area of Lower Neretva valley (Stumberger and Schneider-Jacoby, 2010). There are still no systematic lists of flora and fauna of the area or species distribution maps and habitat maps detailed enough for effective management.

Bird monitoring activities started recently by the Croatian Ornithological Society (COS) which established Ornithological station Metković lead by the local ornithologist from Metković. The station does not have built object or any other facilities for research purposes. There is also no bird watching hides or towers in the area. COS is implementing several bird monitoring programs co- financed by the SINP and partly by the Port of Ploče :

- Monitoring of breeding population of the Stilt (*Himantopus himantopus*) in Neretva Delta and Ploče Port from 2007 – 2011
- Monitoring of breeding population of the Kentish Plover (*Charadrius alexandrinus*) in Neretva Delta and Ploče Port from 2007 – 2011
- Monitoring of breeding population of the Great Bittern (*Botaurus stellaris*) in Neretva Delta from 2010 – 2011
- Monitoring of breeding population of the Eagle Owl (*Bubo bubo*) in Neretva Delta from 2010 - 2011
- Monitoring of breeding birds of wetland habitats along the Lisna River and Parila Lake from 2007 – 2011
- Monitoring of bird community in the reedbeds along the Norin River from 2010 - 2011
- Monitoring of wintering populations of the reedbeds along the Norin River in winters 2009/10 and 2010/11
- Monitoring of wintering populations of the reedbeds along the Lisna River and Parila Lake in winters 2009/10 and 2010/11

Current recreation and tourism:

The importance of recreation and tourism in Neretva Delta has been evaluated only recently. During the last decade tourism-related activities were developing intensively but not in a systematic and planned way. They still depend mostly on initiatives of local people and are not organized to assess its influence on natural values and adapt it accordingly. Private initiatives include organizing of boat tours through the wetland (“photo safari”) on traditional boats (“lađa”) and offering traditional meals in restaurants. There are several hotels in the area, most of them in Metković.

There are several attractions in the area that are important part of touristic offer. The most important is related to the rich historical heritage of Neretva Delta is Museum Narona in Vid that was opened in 2007 as the only *in situ* museum in Croatia. It is located on the site with remains of the main square (Roman forum) that contained the temple devoted to Augustus (Augusteum). Its exhibits include 12 marble sculptures of Roman imperial dynasties among which is dominant the impressive 3 m high statue of the emperor Augustus. Ornithological collection in Metković was opened for public since 1952 owing to ornithologist Dragutin Rucner who was its author. The collection of stuffed birds shows more than 340 exhibits of 218 bird species of the area. Very popular tourist attraction in Neretva Delta is the race of traditional wooden boats

“maraton lađa” held each year in August, when about 30 traditional boats with rower teams from local settlements race for 22,5 km along the Neretva river from Metković to Ploče.

Current land (including water) use:

Land use in Neretva Delta is shown on the map in Appendix 1 which was prepared from Corine Land Cover (CLC) 2006 mapping for Croatia (European project of land use mapping on scale 1:25,000). CLC classes in Neretva Delta and their proportion are presented in the following table:

CLC code		% of Ramsar site
112	Discontinuous urban fabric	2,4
212	Permanently irrigated land	7,9
222	Fruit trees and berry plantations	25,8
223	Olive groves	0,2
231	Pastures	0,01
242	Complex cultivation patterns	13,2
243	Land principally occupied by agriculture, with significant areas of natural vegetation	10.2
311	Broad-leaved forest	0.79
312	Coniferous forest	0.22
313	Mixed forest	0.05
323	Sclerophyllous vegetation	1.48
324	Transitional woodland-shrub	0.18
321	Natural grasslands	0.29
411	Inland marshes	24.71
421	Salt marshes	2.14
423	Intertidal flats	0.37
511	Water courses	2.32
512	Water bodies	1.32
523	Sea and ocean	6.42
TOTAL		100

From this data it is obvious that prevailing land use in Ramsar site is agriculture. The largest area of agricultural land (25.8%) is covered with fruit trees plantations, mostly tangerines. They were developed in the large complex of meliorated land close to the river mouth. Smaller agricultural parcels are part of mapped CLC classes “complex cultivation patterns” (13.2%), “land principally occupied by agriculture, with significant areas of natural vegetation” (10.2%) and “permanently irrigated land” (7.9%). Recently, more and more greenhouses are being built for intensive vegetable growing. Traditional cultures like vineyards and olive groves have almost disappeared from Delta after large land reclamation works in 1960’s. Neretva Delta is the largest and the most significant agricultural area on Croatian coast. Large majority of local people make their living of agriculture.

The second largest group of CLC classes includes inland marshes (24.7%), watercourses (2.32%) and water bodies (1.32%). Marshes include several nature protection areas but some important parts are not legally protected yet. These areas are used for hunting and fishing and even for illegal creation of agricultural land or parcels for greenhouses. Small watercourses are

also used for tourist boat tours (“photo safari”). The Neretva River watercourse is completely regulated in its last section through the Delta.

The third complex is made of shallow sea with lagoons, intertidal flats and salt marshes. Although the most of this area is protect, there are intensive activities ongoing there still threatening valuable habitats and their significance for bird and fish fauna. These activities are recreation on the sand beach, kite surfing, bait collecting, auto-camp on the river mouth, illegal fishing and hunting. This is the most endangered part of the Ramsar site.

Additionally, there are also settlements in Neretva Delta. Large traffic infrastructure covers 2.4% of the site surface.

Social and cultural values:

Neretva Delta has a great sociological significance and contains exceptional cultural heritage.

Social values are connected to local people that inhabit the area. They mostly base their way of life on values provided by unique combination of wetland and parts turned into arable land. Besides agriculture, the main traditional activities in the area used to be fishing (Delta is especially famous for eels) and bird hunting. Today, due to significant decrease of bird and richness of fish populations in delta through last decades, fishing and especially hunting are losing significance and became restricted by legal provisions. Nowadays, agriculture is the prevailing activity in this area while the role of tourism is growing. After land reclamation works in 1960's, a large part of wetland was turned into agricultural land used for production of mandarins, other fruits and vegetables.

Cultural values

People are present in Neretva Delta for thousands of years, turning wetland into arable land and establishing transportation routes towards the hinterland. Agriculture was developing gradually through traditional way of creating land parcels in the marsh (digging channels and putting excavated soil aside, thus making small land plots). These traditional channels are called “jendeci” and form unique, specific landscape in Europe. People used to move between them in small narrow wooden boats suitable for only one or two persons (“trupa”) while larger boats “lađa” were used mainly for transport of agricultural products and livestock. Today these boats are still in use, representing one of the main characteristics of local tradition. They are also used for touristic purposes: boat tours through wetland (“photo safari”) as well as famous race of boats “maraton lađa” held each year in August, being one of great touristic attractions today.

Traditional architecture in the Neretva Delta has its specific characteristics and makes part of the monumental heritage of this region. Numerous scattered villages consist of stone houses covered with stone plates. They are more and more abandoned and either become ruins or adapted in an inadequate way. Monument heritage of this area is exceptional and significant on international level. Many prehistorically fortifications and settlements as well as tumulus are scattered mainly on higher positions along the Neretva River. This area was inhabited by Illyrian tribes as far back as in the Iron Age. In the 4th century B.C., the ancient Greeks founded an emporium (the port) there, which developed into the well-known Roman market town Naron, today called Vid near the Metković town. Many monuments from the Roman times are present here, such as city walls with towers, Roman villas and mosaics. All over the delta around Naron there were suburbs and estates the remnants of which are now covered by the marsh and deposited sediments. The whole area has enormous archeological value. Systematic researches and excavations from the beginning of 20th century had sensational results. The most famous discovery was made in 1996 in the center of the village Vid where the remains of the main square (Roman forum) with the temple devoted to Augustus (Augusteum) were found. The temple that was built cca 10 years BC contained 12 marble statues among which is

dominant the impressive 3 m high statue of the emperor Augustus in his imperial dress. Statues have been placed into the temple through 200 years period, and include sculptures of Roman imperial dynasties from times of emperors Augustus, Claudius, Vespasian and Severus. The other famous discovery in Naronia was the torso of Livia Drusilla, the wife of Emperor Augustus. The head of Livia belonging to this torso was taken to Ashmolean museum in Oxford in 1878 while the torso is kept locally in the Opuzen town (so-called “Oxford-Opuzen Livia”). This torso probably also belongs to Augusteum. Today the group of imperial sculptures of Augusteum, together with the relief group Ara Pacis in Rome, is the most numerous group of imperial sculptures of the Old Rome in the world. Sculptures of Augusteum have been restored and shown in numerous museum exhibitions throughout the Europe. Today sculptures are kept in Museum Naronia in the village of Vid opened in 2007 as the only *in situ* museum in Croatia. The Christianity can be traced in the Neretva Delta as far back as from the middle of the 5th century. Of the five Early Christian sacral monuments the dominant one is St Vid's Basilica with very well preserved baptistery at the place of the present church in Vid. The medieval monuments are only few. During the Turkish invasion at the end of the 15th century, the impressive fortress Norinska kula (Fortress of Norin) was built by the Otoman Empery at the mouth of the Norin River into the Neretva, serving for defense against Venetian ships. Due to frequent wars in this area, no significant monuments from those times have been left.

Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects

in the surrounding area:

In the surrounding area especially problematic are issues related to transboundary water management and numerous water regulations in catchment area of the Neretva and neighboring Trebišnjica River in B&H. Watersheds of these two rivers are connected through karst underground. Re-direction of waters from so called Upper horizons (“Gornji horizonti”) of Trebišnjica River into the area of Lower horizons (“Donji horizonti”) with three existing hydropower plants results in loss of water in lower Neretva area, lower summer water level, drying out of water springs and strengthening of influence of the sea. There are plans to even increase these activities and to take the most of available water for additional use of hydropower plants in eastern Herzegovina.

Currently, environmental impact assessment is being prepared in co-operation between two countries. Additionally, considerable water regime disturbance was caused by the construction of five upstream hydropower plants on Neretva River on the territory of B&H. Their dams keep water and sediments, thus causing frequent and rapid water level changes or water shortage, especially during summer.

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