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THE DANUBE FLOODPLAIN IN THE PONTIC SECTOR-ECOSYSTEM SERVICES, ANTHROPIC MODIFICATIONS AND ECOLOGICAL RECONSTRUCTION

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Abstract

In the so-called Pontic sector (Drobeta-Turnu Severin – Brăila) the stream gradient falls from 0.045 to 0.06‰, forming some islets (Rom. "ostrov") (Ostrovul Mare, Păpădia, Calnovăţ, Băloiu and Ostrovul Păsărilor) and a 4 – 13 kmwide floodplain on the left handside, which before dyking and draining had encompassed numerous lakes. In this sector, the lefthandside tributaries of the Danube in Romania – the Jiu, Olt and the Argeş, are bigger than in Serbia and Bulgaria, but they are more numerous (Timok, Ogosta, Iskar, Vit, Osam, Iantra and Lom). A second hydro power station was built at Ostrovul Mare in cooperation with Serbia. A famous *rail bridg*e between Feteşti and Cernavodă was built by Anghel Saligny in the years 1890 – 1895. It was the longest bridge across the Danube, and the eighth in the world at that time. A second road-and-rail bridge, parallel to it, was commissioned in 1987. A road-and-rail bridge (commissioned in 1954) spans the river between Giurgiu (Romania) and Ruse (Bulgaria). In this sector was built in 2015, a new bridge for vehicle traffic between Calafat (Romania) and Vidin (Bulgaria). The floodplain of the Lower Danube (Pontic Sector) between Gruia and Tulcea, comprised numerous lakes, marshlands with reed and rush as well as softwood floodplain forests usually occurring as galleries on natural levees and frequent flooding, the local population was suggestively named „balta". The „baltă", serves as a habitat for numerous plant and animal species the development of which is closely related to the water. The closely interrelation between Danube and floodplain (Balta), as well as the natural processes occurring within floodplain accomplish significant hydrological, biogeochemical and ecological functions and comprise a number of natural resources and values that are of great use to the local population. The relationship between Danube and Balta has been largely interrupted beginning with 1960 year, when a large areas were cut by dams, drained and transformed into agricultural polders. The consequence of these measures was a not the loss of broad floodplain areas (4400 km²), it also implied the manifold natural services/functions of this area, as spawning for fish, filter for pollutants et al.

Keywords: Danube, floodplain, vocation, ecogeographical changes, consequences.

1. INTRODUCTION

1.1. Morphohydrographic and ecogeographical features of the Danube floodplain

The lower Danube sector, with the exception of the Iron Gates defile, is characterized by an asymmetric development in morphohidrographic aspect, with a floodplain mostly developed on the left side (between Drobeta - Turnu Severin and Călăraşi) on the territory of Romania, with uneven extension, fragmentation and narrowing at Islaz, Zimnicea, Giurgiu, Oltenița, Călăraşi (5 km to Greaca, 12 km to Călăraşi). From Călăraşi to Brăila, the floodplain has the largest expansion, being included between the arms of the Danube River, which, under natural conditions, undisturbed, formed two wetlands of the *Mesopotamian type*, known under the *hydronims* of *Bălţile Ialomiţei (Borcei) and Brăilei*. From Brăila to Tulcea, the floodplain has a significant extension, on the right side of the Danube, on the territory of Romania.

The total area of the floodplain, including the delta, is 9230 km², 4% of Romania's territory, respectivelly. Under natural conditions, the Danube floodplain and Delta were an *amphibious territory* consisting of *gorges, lakes, brooks, japşe, eutrophic marshes, warblers - willow and poplar forests on the river banks*, being flooded before the diking and draining works (1960) during large spring / summer waters (93% at hydrograph 8). It was estimated that at 1.5 m water thickness, the accumulated water layer for 1-2 months a year, the volume of water retained was approx. 4.3 km³, contributing to the mitigation of floods and, at the same time, the renewal the water of the lakes, alluvialisation and ecotonic ecology.

The Danube floodplain and delta have been an area of great economic importance through fishing, hunting, green floodplains, grazing and agriculture, before the embankment. The well-known hydrologist Grigore Antipa, who dealt with the floodplain and the delta, has scientifically argued through his work the role of this ecosystem, flooded by the multiple services / functions such as *genetic capital, biofilter, reproduction of many species of fish, economic productivity, tourism valorisation* (Regiunea inundabilă a Dunării, 1910) (Fig. 1).

Figure 1. Danube Floodplain in the sectors: Suhaia Lake and Vedea River Mouth (Morphohidrographic Configuration on the Szatmari Map, 1864)

The Danube floodplain, on the river's left side on the Romanian territory, is an important morphohydrographic component with variable widths, summing up to the delta's ending at Chilia – Ceatal an area of 5495.63 km², which was diked in 4377, 97 km² (79%) with 56 polders / modules. Being removed from its natural, wetland regime, the services / functions that are particularly important have been greatly reduced.

2. METHODS

2.1. Ecosystemic services provided by Danube floodplain

Ecosystem services are *material, energy and information flows* of natural capital stocks which, together with human capital and man-made services, produce human well-being and are classified into *production, adjustment, support and cultural services* (Constanza et al., 1997).

In the specific conditions of the Danube floodplain, prior to embankment, *the most important in the hierarchy of ecosystem services were the adjustment (hydrological, biogeochemical, climatic-topoclimatic), support, ecological, production (vegetal, animal, etc.) and cultural ones (recreation, fishing and hunting).*

* *The hydrological services* of the Danube floodplain determined, before the floodplain was diked, the retention of about 6 km³ of water during the floods, and thus the mitigation of the floods, the sedimentation of alluviums through flooding, beneficial to soil formation, feeding and maintenance of groundwater level with avoidance of salinization. As a result of the reduction of the *free space* and surface, there is an increase in the level and the discharge of the Danube River in the present case with an increase in the Danube Delta, so as was the case in 2006.

**Biogeochemical (ecotonic) services* resulted from the hydrological ones by maintaining the carbon-nitrogen-phosphorus circuit balance, the retention and recycling of nutrients, the ability to retain and filter toxic substances (pesticides, heavy metals), transforming organic pollutants into anorganic materials. Restriction of ecotonic space along the Danube River determines the increase in concentrations of pollutants reaching the Danube Delta and in coastal marine waters.

**Ecological services* consist of a diversified habitat for plants and animals (spawning reproduction at flooding, nesting for birds), genetic capital and biodiversity, avifaunistic biocorridor, bioproductivity and food resources, etc.

**Climatic and topoclimatic services* were manifested through a mild climate caused by higher evaporation / evapotranspiration, higher humidity, more moderate temperature than outer space due to water surfaces (lakes, brooks, flood waters, marshlands, etc.).

**Cultural services* resulted from specific ecotourism (fishing, hunting, recreation).

**Production services* were given by harvesting rush, reed, softwood (willow, poplar), apicultural space, professional fishing in existing lakes, traditional agriculture, etc.

In addition to the floodplain, the Danube River bed has undergone morphohydrological modifications, through hydro-energetic facilities, riparian and harbour activities, prelevations of water volumes for irrigation which, due to climatic changes influenced and still influence the liquid and solid flow regime, the water quality.

Man's interventions in various aspects, on the main river bed - the "*space of liberty*" and on the affluent ones from the entire drainage basin, in correlation with the climate change, led to changes in the drainage regime, especially in high water phases, producing floods, significant material damage (1970 and later in 2006, 2009), but also in the low water phases (2011).

3. RESULTS AND DISCUSSION

3.1. About the toponim floodplain and "baltă"

The term *"baltă",* apart from the designation as intermediate phase in the evolution of a lake to maturity to a *marsh*, due to clogging and partial or total cover with *hydrophilic* vegetation, is also used locally for the floodplain along a river, especially in the Danube floodplain, which is, in a natural regime, *regularly flooded at big waters*, and after the water withdrawal, leaving many lakes, brooks, deserted courses.

In the work *La plaine Roumanie et le balta du Danube* (1907), G. Murgoci underlined that the *balta* "*is a vast region subject, in particular, to the spring floods, the rest of the time being scattered with shallow lakes and abandoned arms*".

Also, in the works of G. Vâlsan, C. Brătescu, Gr. Antipa, I. Conea, the term of *balta* is found in G. Murgoci's view and which, the Romanian riparian population of the Danube floodplain, in a toponymic sense, attributed to the flooding plain with numerous lakes and brooks. The locals on the Romanian Danube shore, when they say that they "*go to the balta*" or "*to in the balta*" did not refer to a particular lake, but to the floodplain where there are fluvial beams covered with willows and other tree species, rushes and reeds, to numerous lakes and brooks. This toponym (*geo-hydronim*) is very well materialized in the two morphohydrographical units - *Balta Ialomiţei (Borcea) and Balta Brăilei*.

The same meaning results from the work of Emm.de Martonne "La Valachie" (1902) and from which we quote in translation, "*at Călăraşi, what the people actually call"Balta". "Mlaştinile Dunării ungureşti" (Hungarian Danube Swamps) and "Mlaştinile Tisei" (The Tisza Swamps) are nothing to the labyrinth of the fluvial arms, islands, marshes, lakes and canals that cover the 12 to 18 km wide valley between the heights of Dobrogea and the Bărăgan loess cliff*".

Gr.Antipa in the works - *Regiunea inundabilă a Dunării* (1910), *Dunărea şi Problemele ei ştiinţifice, economice şi politice* (1921), analyzes the Danube problem in the European context and equally the lowland floodplain. In the second work (1921), Gr. Antipa characterized the morphology and the hydrological role of the Danube as follows: *"The basin through which the waters of the Danube are drained is composed of two distinct parts: 1) The main stream bed or the lower riverbed, through which the waters drain when are in the normal state, limited by the two banks; and 2) the Balta orFloodplain r riverbed, that is to say, those large areas of land over which the river waters flow in the period of their maximum increase ... The Balta, in these times, fulfills the role of a safety valve for the river ..... of great importance is the duration of the overflows for fisheries, we could establish a general law that their production is directly proportional to the flooded area and the duration of the overflows.* " Also Gr. Antipa characterized the Danube floodplain / balta "*According to the type of vegetation with which the pond fields are covered, we distinguish cropland on ravines, pastures, gorges, shrubs; alder and willow forests; rushes of sea buckthorn, reeds, etc.*".

3.2. Danube floodplain and danubian limes – living space

Ever since antiquity, as it turns out from the writings of the ancient scholars such as Herodotus (484-429 BC), referring to the Getaes' settlements and occupations, they were occupied with agriculture, cattle breeding, fishing. In the Byzantine period, Jordanes mentions, in a work in 551, the geography and ethnography of Dacia, and Procopius of Caesarea, information on fortifications and Byzantine bases along the Danube River.

In addition, from the *archaeological vestiges, historical documents and local toponymics*, it is clear that along the Danube there were early human settlements, some of which became important trading centers, making intense exchange of products between the local population and the merchants who were climbing with their boats on the Danube upwards.

Ialomita Balta was in the historical past the most inhabited area of the Danube downstream Călăraşi. *"... In the land of the Danube and Mostiştea ponds, comprising both the high riverbanks and the Danube Pond with its islands and slopes, from Olteniţa to Gura Ialomiţei, we meet a real Getae-Dacian Land, full of ancient settlements from the time of stone weapons and tools, that is, 5,000 years ago"* (Pârvan, 1923, p. 55).

The outliers(grădişti / popine) carrying traces of human settlements. These forms of relief - *erosion witnesses* or *riverbeds* fragmented and isolated from the Danube stream bed, grow in number downstream of Calafat, which in ancient Slavic language meant "*castra, fortress, citadel, fortified place*", represented human settlements (Conea, 1974).

Thus, the known permanent or temporarily inhabited stables are - Potel, Găujanilor, Gostin, Gumelniţa (neolithic culture), Ceacul, Mocanului toponims (transhumance document), Cuneşti etc. In Brăila Balta, it is worth noting the riparian Bărăgan river outliers: *Grădiştea Mare, Scoica, Oltina, Dichisenilor, Grădiştea Înaltă, Lătenilo,* and the popinae in the floodplain were once, permanently or temporarily inhabited. It can be said that the Danube floodplain and balţi were much better populated than at present. The strategic importance and possibilities provided to the population for food and shelter explains the age of the settlements and the continuing persistence of the autochthonous population.

Many documents from the XVth th-XVIIth centuries mention the names of villages that prove the permanence of the Romanian population on the two river banks of the Danube, starting downstream of the Iron Gates defilee to the end of the Danube Delta. An important contribution to this had also the Transylvanian shepherds who wintered the sheep in the floodplain and delta, forming settlements at the beginning as temporary settings, and then becoming permanent.

From ***cartographic documents***, from *Oltenia's Map (Harta Olteniei)* of Fr. Schwanz (1718-1722), *Austrian map* (*Harta austriacă*) from 1790-1791, *Russian map (Harta rusă)* from 1835, to the ones made by Lambert, in late 19th century, it is noted that many of the rural settlements in the Danube floodplain, retreated to the contact and on the Danube fluvial terraces due to the floods (Bistreţ, Prundu, Greaca, Feteşti, Ostrov), remaining in the floodplain only: Desa and Sărata (Dolj County); Braniştea, Gostinu and Oinacu (Giurgiu County); Giurgeni (Ialomița County); Vadu Oii (Constanța County); Stânca and Stăncuţa (Brăila County); Grindu, I.C. Brătianu and Smârdan (Tulcea County) and those from Brăila Pond, especially in the southern part ((Plopi, Măgureni, Mărăşu, Băndoiu, Ţăcău, Agaua, Salcia, Frecăţei) (Conea, I., Badea, I., 2006).

3.3. The diking action of the Danube floodplain

The diking of the Danube Floodplain was in the attention of two great Romanian personalities, since the beginning of the XXth century - Anghel Saligny, a construction engineer, and Grigore Antipa, a hydrobiologist, with different views. Saligny, through a promulgated law in 1910, supported the total diking of the Danube River.

Grigore Antipa, in the *Regiunea inundabilă a Dunării* (1910) shows as we quote, "*to drain the ponds or even diminishing their surfaces without replacing them with other sources of humidity at least equal to them would determine an imbalance in the nature economy which would have very dangerous effects both for the future of agriculture and in general for the climate of these regions and everything that depends on it."*

Anghel Saligny's desideratum was made especially after 1960 when, with the first agricultural arrangements - Chirnogi, 1904-1906, continued with the ones from Luciu, Mănăstirea, Giurgeni, in a few thousands of hectares, the generalized diking action in the period 1960-1990, the pond being removed from the natural regime, with the elimination of the beneficial functions of the Danube floodplain and exposure to many risks, 79% of the surface, from Calafat to Isaccea (Table 1, Fig. 2).

Table 1. Area with dikes in Danube floodplain in the period 1904 – 1990

Sector	Position (km)	Flooded area (ha)	Area remained in natural regime (ha)	Area with Dikes (ha)
Gruia – Calafat	851-795	5500	950	4550
Calafat - Bechet	795-679	47315	7345	39970
Bechet - Corabia	679-630	21960	2820	19140
Corabia -Tr.Măgurele	630-590	4640	2680	1960
Tr.Măgurele - Zimnicea	590-554	22565	3265	19300
Zimnicea - Giurgiu	554-493	23705	4075	19630
Giurgiu - Oltenița	493-430	42885	3465	39420
Oltenița - Călărași	430-365	45005	5455	39550
Călărași - Hârșova	365-252	113368	30698	82670
Hârșova - Brăila	252-170	153418	41761	111637
Brăila - Tulcea	170-72	69252	9282	59970

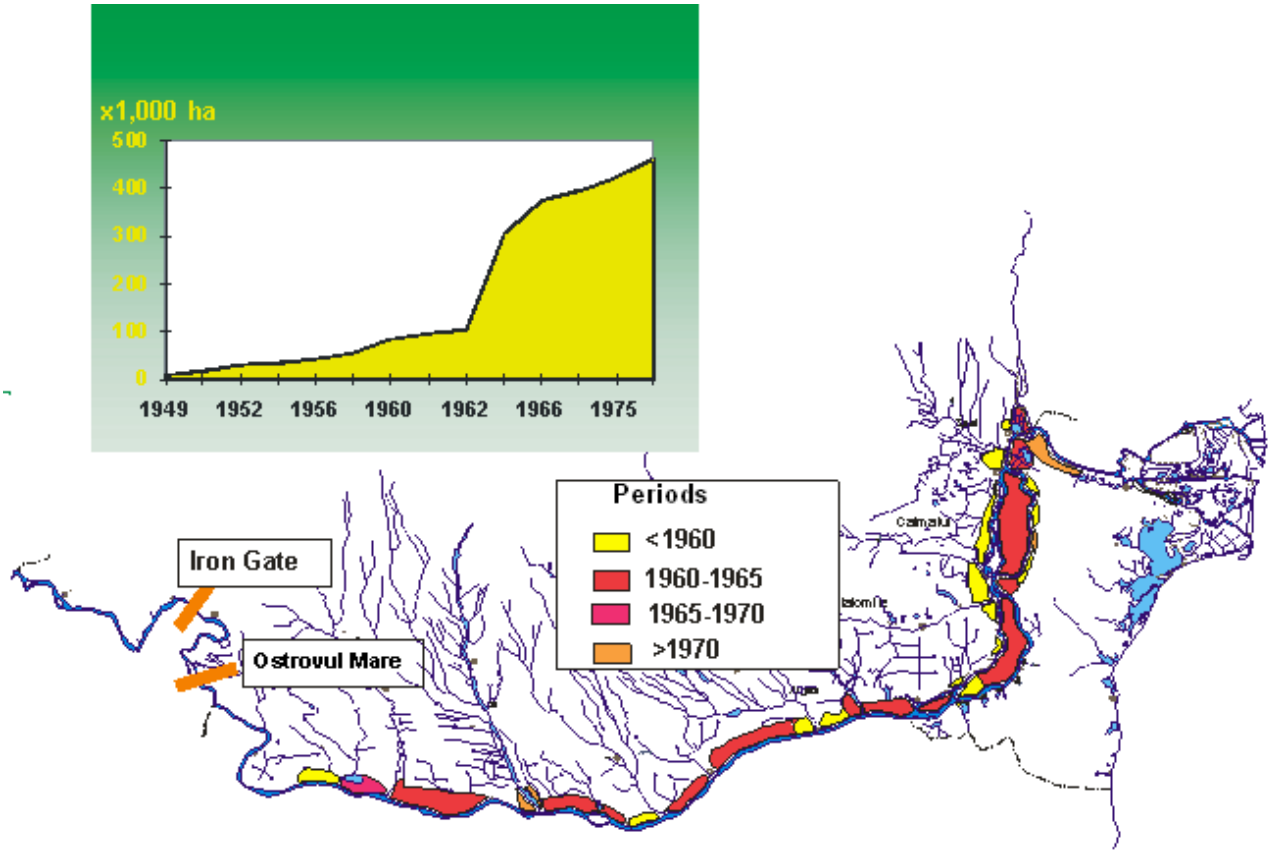

Figure 2. The evolution of diking actions in Danube floodplain (INCDDD, source)

3.4. Economic and ecogeographic consequences of the diking of Danube floodplain

Of course, the purpose of diking the Danube floodplain between Calafat and Isaccea was to render this wetland to agriculture, although the riparian Romanian Plain, with its geomorphological and pedogeographic features, was and is particularly favorable to the development of a modern, intensive agriculture and to the production of high-quality cereal products.

The lands from the Danube's floodplain with non-evolved alluvial soils, in some sandy and marshy areas, out of the floodplain, did not meet the expectations in terms of production, and then, until 1990, state farms with lands also on the terraces reported mixed production hiding the unprofitableness of diked surfaces.

Moreover, on the lands from the diked floodplain, accompanied by the decrease of the groundwater level, *deflation* processes occurred on the sandy soils, *saltings* through evapotranspiration, *subsidence* on the peat marshes.

In this respect, we mention a specific situation regarding the floodplain sector between Giurgiu and Oltenița, especially the bottom of the Greaca Lake, covering an area of 74 km², which was more than 50% unproductive by draining. At the request of the well-known Romanian journalist Petre Mihai Băcanu, the undersigned and Dr. Ion Iordan from the Institute of Geography, we analyzed and drafted an article presenting the situation of that space in ecogeographical and economic terms, the article collected in "patch" and which has not received the publication notice from the Department of State Agriculture of the Ministry of Agriculture since 1988.

By impounding the Danube floodplain, there were lost a special genetic capital, a remarkable biodiversity and of economic valences - fishing, hunting, vegetal mass (rush, reed), a biofilter of pollutants drained from the river and terraces, a topoclimate that attenuates the thermal regime and increases the humidity of the air, etc.

Also, with the diking of the floodplain, it was restricted until disapearence *the Danube's free space* which was in operation during the high spring waters with the role of mitigating the floods and thus the insecurity of some rural settlements, of many port buildings.

The flood defense of diked lands and many socio-economic objectives consisted in the allocation of money, labor, and the involvement of the competent institutions – the emergency inspectorate, but also the riparian local authorities. A first episode in the "*behavior*" of the Danube, were the floods of July 1970, when the high water pressure and the floods on the dikes were quite high, repeated in 2006, 2009, when more breaks occurred in dikes, with flooding of settlements (Rast) and diked enclosures, producing many material damage (Rast-Bistreț, Spanțov, Călărași, Făcăieni, Isaccea, etc.) (Fig.3).

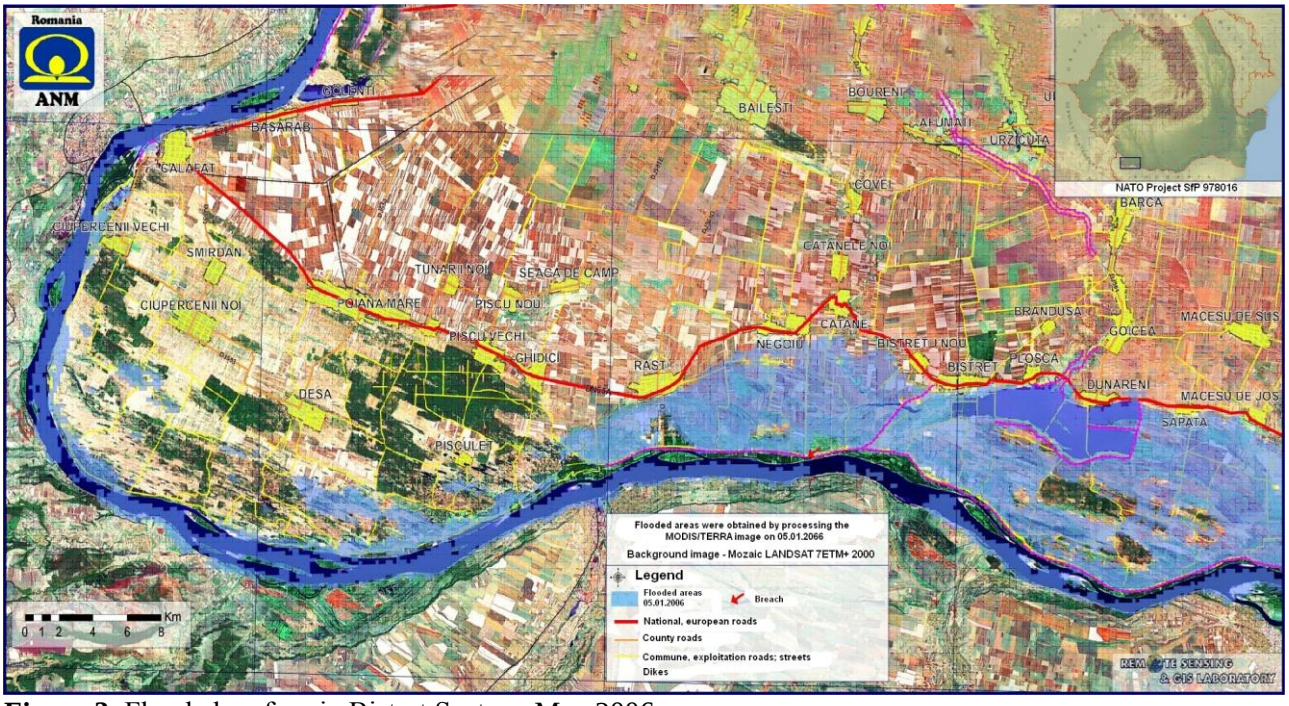

Figure 3. Flooded surface in Bistreț Sector - May 2006

In an article published after the floods in 2006, several solutions were proposed to redevelop the Danube River in the lower course, namely:

- the creation of cascade polders, some temporary, some permanent, from upstream to downstream, for the accumulation of water volumes and the mitigation of floods during high waters;
- the construction of secondary arms / courses, by which floodwaters are diverted to protect important localities (eg Brăila, Galați);
- the realization of wetland habitats for biodiversity conservation (Mihailovici et all., 2006)

3.5. Reconstruction and management of wetlands

The importance of wetlands, starting with the 1971 ***Ramsar Convention***, as a habitat for water birds, has expanded shortly. In 1995, the European Parliament's Committee recognized the importance of wetlands, so that the 2000/60 / EC Water Framework Directive was developed and subsequently implemented, which mainly aims to improve the status of both aquatic and terrestrial ecosystems.

By the signing in 1991 the Ramsar Convention, and the elaboration of the Environmental Protection Strategy by the Ministry of Agriculture, a Wetland Inventory Program was conducted in coordination with the National Institute for Danube Delta Research and Development in Tulcea, among which the participating institutions was also the Institute of Geography. Based on existing studies and publications, several wetlands / sites were retained and synthesized: 200 oligotrophic marshes of 20 km², 200 eutrophic marshes of 50 km², 3,450 natural and anthropic lakes of approximately 4,600 km², 115,000 km river length of permanent and semi-permanent drainage, approx. 400 km^2 representing the Romanian coastal marine waters up to a depth of 6 m (Török, 2000, Gâştescu, Ciupitu, 2004). Of the many sites / wetlands, approx. 150 were selected, some of them being studied on the basis of a standard methodology, many of which are located in the Danube floodplain. The Danube floodplain, downstream of Calafat and to Isaccea, with a few exceptions (the Balta Mică a Brăilei), has been diked and drained (about 4,400 km²) and in the Danube Delta through various modules, regardless of agriculture, forestry and fish farming, approx. 1000 km² were removed from the natural hydrological regime.

Of course the examples can continue with the floodplains of the Prut, Siret, Ialomiţa, Argeş, Olt, Jiu, Timiş, Bega, Mureş, Criş and Someş rivers, which have undergone numerous modifications, either by constructing reservoir lakes, minor alluviums / flood plains and the disappearance of rehophic ecosystems, either by dams and drainings. In June 2000, the Government of Romania organized together with the governments of Bulgaria, the Republic of Moldova and Ukraine a conference to create the ***Lower Danube Green Corridor Project*** with the major objective of restoring and protecting wetlands, including lakes, floodplains, flood forests, pastures, etc.

The Lower Danube Green Corridor Project envisaged the integration of already protected areas with other protected areas and the restoration of flooplaine habitats to about 6,000 km², of which about 2,000 km² would be protected for migratory bird trails, fish breeding sites, genetic background reservoirs and proposed 1,000 km² for ecological reconstruction (Fig. 4).

Wetland management should be looked at in long term to combine the conservation and protection of biodiversity in accordance with socio-economic requirements. Wetlands constitute resources that human society should appreciate in terms of complex services / functions in relation to possible hazards but also in terms of developing sustainable economic activities.

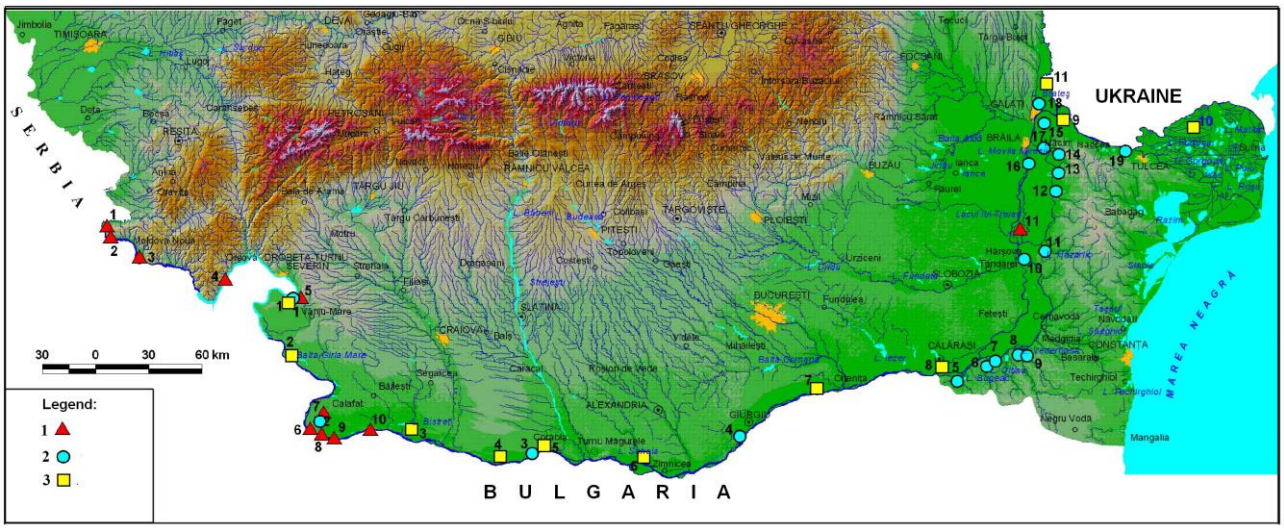

Figure 4. Existing protected areas, new ones proposed to be protected and ecological reconstruction in the Lower Danube Green Corridor Project with a total area of 162 0 km² (INCDDD source)

1. Existing protected areas (1. Balta Nerei; 2. Ostrovul Calinovăţ; 3. Ostrovul Noua; 4. Cazanele Mari şi Mici; 5. Stârmina Forest; 6. Ostrovul Mare; 7. Ciuperceni – Desa Reservation; 8. Ostrovul Acalia; 9. Ostrovul Pietriş; 10. Ostrovul Vana; 11. Balta Mică a Brăilei).

2. New areas proposed for protection (1. Hinova – Ostrovul Corbului; 2. Ciuperceni-Pisculeţ; 3. Danube Sector km 587,4; 4. Ostroavele Cama – Dinu; 5. Bugeac Lake; 6. Oltina Lake; 7. Mârleanu; 8. Vederoasa Lake; 9. Baciu Lake; 10. Borcea Pond; 11. Hazarlâc Lake; 12. Pecineaga Lake; 13. Turcoaia ponds; 14. Sărat and Slatina lakes; 15. Jijila Lake; 16.Ostrovul Funda Mare; 17. Măcin Smârdan Pond; 18. Brateş Lake; 19. Braţul Mort-Dunărea Veche).

3. Areas proposed for ecological reconstruction (1. Hinova – Ostrovul Corbului; 2. Gârla Mare – Salcia; 3. Bistreţ-Nedeia-Măceşu, 4. The Potelu set up complex; 5. La Nisipuri; 6. The Suhaia set up complex; 7. Ostrovul Călăraşi-Răul; 8. The Crapina set up complex; 10. Incinta Pardina; 11. The Flood Plain o f Lower Prut River).

4. CONCLUSIONS

The Danube river has a more "international" character than any other great river. Strung along the river are four national capitals, several other large cities and hundreds of towns and villages. The Danube passes through human habitation of widely levels of development.

From the ancient times the Danube river was a transport which linked the riparian peoples, today states –Germany, Austria, Hungary, Slovakia, Serbia, Croatia, Romania, Bulgaria, Republic of Moldova, Ukraine.

Through the latitudinal development of the Danube River Basin, in the Western, Central and Eastern European space with different climate conditions (ocean and continental temperate), the liquid discharge regime, with high waters during spring and early summer is reflecting a moderate variation

. From the hydrological regime the analysis of average, maximum and minimum flows for the period 1931-2010, the significant increasing/decreasing trends are not noticed. The high discharges of the 1970, 2006 and 2010 years, which produced floods, were also caused by the limitation of *free space* of the lower Danube sector through floodplain embankment

The reconsideration of the complex function of the Danube floodplain is necessary from many points of view - hydrological, ecological, economical and human safety.

The river started being managed for navigation in 1856, when the *European Danube Commission(EDC)*, including also non-riparian countries such as Great Britain and France, was established.

The EDC was assigned the management and maintenance of this waterway until 1948, when the rights of the Danube riverain countries were legalised by the Belgrade Convention..

The reducing the distance of the navigable Danube channel to the Black Sea, a *canal was built* (1976 – 1984) between Cernavodă and Constanţa, along the Cernavodă – Basarabi – Agigea axis and the Basarabi (Poarta Albă) – Năvodari branch was commissioned in 1988.

The river regulation activity to improve navigation and flood control is still attention of the Danubian countries.

The impact of this human activity, in term of morphohydrographic course and hydrological regime, of the Danube river and drainage basin, changes in landscape, loss o biodiversity, has been a matter many concern since the 1980s.

The *Danube River Basin Management Plan* follows the deadlines set out in the *EU Water Framework Directive (WFD).* As a coordinating body, the development of a comprehensive management plan for the entire Danube river basin is based on the principles of the *WFD*. The *WFD* requires water management on a basin-wide scale, thus setting the scene for international and cross-boundary implementation of water regulation.

The *EU Strategy Danube Region(EUSDR)* is to ensure the economic, social and cultural development of states and countries, situated in the drainage basin of the Danube River, by observing environment protection norms.

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