

# THE DANUBE DELTA ECOTOURISM MUSEUM CENTER – PROMOTER OF THE ECOLOGICAL TOURISM

**Cristina DINU**

Danube Delta Ecotourism Museum Center  
Gavrilă Simion" Eco-Museum Research Institute of Tulcea, Romania  
cristinapopdinu@gmail.com

**Abstract:** The fluvial and coastal area of Tulcea County corresponds to the Danube Delta and the Razim-Sinoie Lagoon Complex morpho-hydrographic units, both included in the Danube Delta Biosphere Reserve. The climatic, edaphic, hydrographic and topographical conditions have favoured in this region of Romania the development of landscapes with exceptional ecological and aesthetic values, as well as numerous aquatic and terrestrial ecosystems that ensure optimal living conditions for various species of flora and fauna. The main tourist attraction of the area is the Danube Delta. The second largest and best preserved of Europe's deltas, the Danube Delta has been part of UNESCO's World Heritage since 1991, being characterized as a national biosphere reserve in Romania and as a national park in international taxonomy. The territory is also highlighted by the existence of Natura 2000 with sites of community importance and special protected areas of exceptional value in terms of the conservation of natural habitats. An important ecotourism area of Europe, the Danube Delta – this young world emerging from the death of the old river – is presented in the Danube Delta Ecotourism Museum Center in the City of Tulcea. Through information panels, maps and dioramas, as well as the public Aquarium, the museum is a means of knowledge and a factor in promoting natural heritage, encouraging good quality tourism.

In this Center the visitors/ tourists can see a permanent exhibition which synthetically presents the representative, distinctive elements of the natural and social framework of the Danube Delta Biosphere Reserve, in the context of the North-Dobruja space, through the theme addressed, the exhibition having a unique character for Romania. The existence of a great diversity of aquatic habitats (freshwater, brackish and marine waters) created favourable conditions for the development of a particularly rich fish fauna, in terms of a number of species and individuals, which justified the setting up of a public Aquarium within the Center, giving the possibility to tourists to know directly this wealth of the Delta.

**Keywords:** Romania, Tulcea, Danube Delta Ecotourism Museum Center, ecological tourism, Danube Delta Biosphere Reserve.

## INTRODUCTION

The Danube Delta Ecotourism Museum Center (CMEDD), within the "Gavrilă Simion" Eco-Museum Research Institute (ICEM), represents the new name and, respectively, the new space in which operates since 2009, the old Danube Delta Nature Sciences Museum, the first museum section established in 1964 within ICEM Tulcea (Fig. 1). The idea of organizing a museum of natural sciences to present the fluvial and coastal area of Tulcea County, was determined by the existence in this "corner" of Romania of a unique territory through its natural landscapes, of exceptional ecological and aesthetic values, whose genesis and evolution resulted from the happy combination of climatic, edaphic, hydrographic and topographical conditions – *the Danube Delta*.

Having become in the last 40 years an important ecotourism area of Europe, the Danube Delta – *this young world emerging from the death of the old river*, as the Romanian writer Demostene Botez states – is presented within the CMEDD through information panels, maps and dioramas, as well as the Public Aquarium, the museum being a means of knowledge and information, as well as a factor in promoting natural heritage and encouraging and supporting good quality tourism, which avoids engendering environmental issues – *the ecotourism*. This, by juxtaposing *cultural tourism* and *adventure tourism* (e.g. bird-watching, hiking through forests, canal trips with traditional boats) forms the *sustainable tourism*.

Together with the cultural objectives located in the vicinity – the Museum of Art (*Pasha Palace*), the Ethnography and Folk Art Museum, the *Aziziye Mosque (Abdulaziz Sultan's Mosque)* – CMEDD forms the most representative cultural nucleus of the City of Tulcea, which annually attracts tens of thousands of tourists and locals. Two other such nuclei are formed by the *Avramide House* – the Orthodox Cathedral of *St. Nicholas* – the Choral Temple (*located in the central area of the city*), respectively the Museum of History and Archaeology – the Monument of Independence – the Ancient Rite Orthodox Church of *St. Parascheva (located in the north-eastern part of the city)*.



Fig. 1. Danube Delta Ecotourism Museum Center (photo Gabriel Dincu).

### **BRIEF DESCRIPTION OF THE FLUVIAL AND COASTAL AREA OF TULCEA COUNTY AND ITS REFLECTION IN THE DANUBE DELTA ECOTOURISM MUSEUM CENTER**

The fluvial and coastal area of Tulcea County corresponds to the Danube Delta morpho-hydrographic units (the main tourist attraction) and the Razim-Sinoie Lagoon Complex, both included in the Danube Delta Biosphere Reserve (D.D.B.R.) – an area of national and international ecological importance. The diversity of environmental conditions that ensure optimal living conditions have favoured the development of a biological diversity of aquatic and terrestrial flora and fauna, but also a rich and diverse cultural heritage, material and immaterial (e.g. archaeological sites, architecture and traditional occupations, customs and traditions, etc.).

The second largest and best preserved of Europe's deltas, the Danube Delta has been part of UNESCO's World Natural Heritage since 1991, being declared a national *biosphere reserve* in Romania in 1998 and a *national park* in the international taxonomy (IUCN). Since 1991, it also has the status of a *Ramsar Site* (wetland of international importance). The territory is also highlighted by the existence of some *Natura 2000 sites (sites of community importance, specially protected areas)* of exceptional value in terms of the conservation of species and natural habitats. All these categories of protection have the purpose of *preserving characteristic natural areas, representative ecosystems with genetic resources capable of maintaining and expanding some plant and animal species on the way to extinction or in danger, as well as the preservation of cultural diversity*. The Danube Delta represents a unique biome, with a multitude of natural habitats, from those permanently flooded to extremely dry ones. The 23 natural ecosystems, partially modified by man, and the seven anthropogenic ecosystems of the delta, respectively, function based on complex interrelations, conditioned by the dynamics of the Danube River levels, by the periodic exchange between high and low waters. The natural setting combines in a different but spectacular way, aquatic surfaces with marshy lands and sea and fluvial banks, the seashore and dunes with arid and exotic landscapes, a dense network of canals, tributaries, ponds and lakes, which along with the arms Chilia, Sulina and Sfântu Gheorghe are the main access and circulation routes in the delta. These intertwine with portions of land, such as the fluvial

banks, along the three arms of the Danube River, the transversal fluvial-maritime banks (Letea, Caraorman and Sărăturile) and the loess fields.

All these aspects are presented synthetically in the permanent exhibition, focusing on the representative, distinctive elements of the natural and social setting of the Danube Delta, in the context of the North-Dobrogean space, through the theme addressed, the exhibition having a unique character for Romania. The existence of a great diversity of aquatic habitats (freshwater, brackish and marine waters) created favourable conditions for the development of a particularly rich fish fauna, which justified the setting up of a public Aquarium within the CMEDD, giving the possibility to tourists to know directly this wealth of the Delta.

The **permanent exhibition** is structured in three sections (history, nature and ethnography) and is displayed over two levels (ground floor and first floor). Scientific information is presented in the form of documentary films (in Romanian, English, French, and German) and in the form of text on panels and labels (in Romanian, English and German), as well as on two info kiosks (in Romanian and English). For added attractiveness, but also for the most faithful reproduction of the aspects of the presented habitats, the plant materials used are natural and the dioramas are sonorised with the voices of the birds presented in each of the dioramas. In this way, we want the public to experience the sensation of being "*present in the middle of nature*".

**Historical setting.** Using five graphic representations, the theory of the formation of the Danube Delta (*gulf-lagoon-delta*) and the sediment transport and deposition processes that took place and take place yet in the delta for almost 12.000 years are presented (Fig. 2). The succession of inhabiting the deltaic space and the human impact on the area are reproduced by means of an interactive map (which presents nine historical periods significant for the history of the area), three-dimensional historical evidences (archaeological objects discovered in the area dating from the Roman and Greek eras) and four maps representing the mouths of the Danube from antiquity until the 19<sup>th</sup> Century (Fig. 3).



Fig. 2. Genesis and evolution of Danube Delta (photo Valeriu Leonov).

**Natural setting.** This section presents information regarding the status of the Danube Delta as a *biosphere reserve* (e.g. the characteristics that give it its uniqueness, territorial limits, morpho-functional units, strictly protected areas, buffer and ecological reconstruction areas, ecosystems types, biological diversity, as well as areas of tourist interest) through informative panels, an interactive physical-geographical map (Fig. 4) and also four thematic dioramas: *Pelicans*, *Fluvial Delta*, *Fluvial-Marine Delta* and *Razim-Sinoie Lagoon Complex*. In order to illustrate the value of the biological diversity of the areas in the territory of the DDBR, it was considered the presentation of species of special ecological interest, respectively endemic, endangered, vulnerable, rare or invasive species.



Fig. 3. Inhabitancy phases of Danube Delta (photo Cristina Dinu).



Fig. 4. Danube Delta Biosphere Reserve's presentation (photo Cristina Dinu).

The **Pelicans Diorama** (Fig. 5) presents the floating reed beds, a type of biotope characteristic of the Danube Delta, and the two protected species of pelicans. The *white pelican*, a symbol of the Danube Delta, has the highest conservative value among the birds of this area, as here 90% of the pelicans that occur in Europe are nesting there on floating reed beds, forming the largest colony of the continent. The *Dalmatian pelican* is a very rare species whose number does not probably exceeds 500 pairs in Europe. Both species are summer guests and strictly protected species, being declared *nature monuments*.

The **Fluvial Delta** (Fig. 6) represents the oldest part that has been formed within the Danube Lagoon. This sector begins at the first bifurcation of the Danube (Chilia Ceatal) and extends to the alignment of the Letea-Caraorman-Crânciul marine sand banks. The representative biotopes for this unit of the Delta, and presented in this diorama, are the channels, the fluvial banks, the willow forests with *Salix alba* and *S. fragilis*, the marshes, the fixed and floating reed beds and the lakes. The willow forests form a common landscape along the hydrographic network of the Danube Delta. This habitat has a high biological diversity represented by mammals (e.g. otter, musk rat), different bird species (e.g. cormorants, herons, swans).



Fig. 5. *Pelicans* Diorama (photo Gabriel Dincu).

The ***Fluvial Marine Delta*** (Fig. 7) includes the relict marine sand banks Letea, Caraorman and Sărăturile and one of the most important lacustrine complexes, respectively Roșu-Puiu-Lumina lakes. Letea sand bank is characterized by a relief with dunes, higher than the rest of the delta (12.4 m), on which the forest with the same name is growing. This forest represents a particular type of vegetation, the endemic habitat *Danube Delta of Periploca-poplar-oak-ash forests*. Developed in the low areas between the dunes, with a higher humidity the forest is formed of stripes 10-250 m in width (named *başmacuri*) and it is mainly composed of oaks, poplars, narrow-leaved ash, Pallis' ash (*discovered here for the first time as a new species for the world flora*), elm tree and completed by a rich shrub layers and the climbing plants, which give a subtropical aspect to the forest. The fauna is represented by various rare species, of invertebrates, amphibians, reptiles, birds and mammals, very rare in Europe and protected at the international level. Letea Forest was set under protection in 1930, becoming a nature reserve in 1938 and a biosphere reserve in 1979. Subsequently, in 1990, it was declared as a scientific reserve of forestry, zoological and botanical types.



Fig. 6. *Fluvial Delta* Diorama (photo Valeriu Leonov).

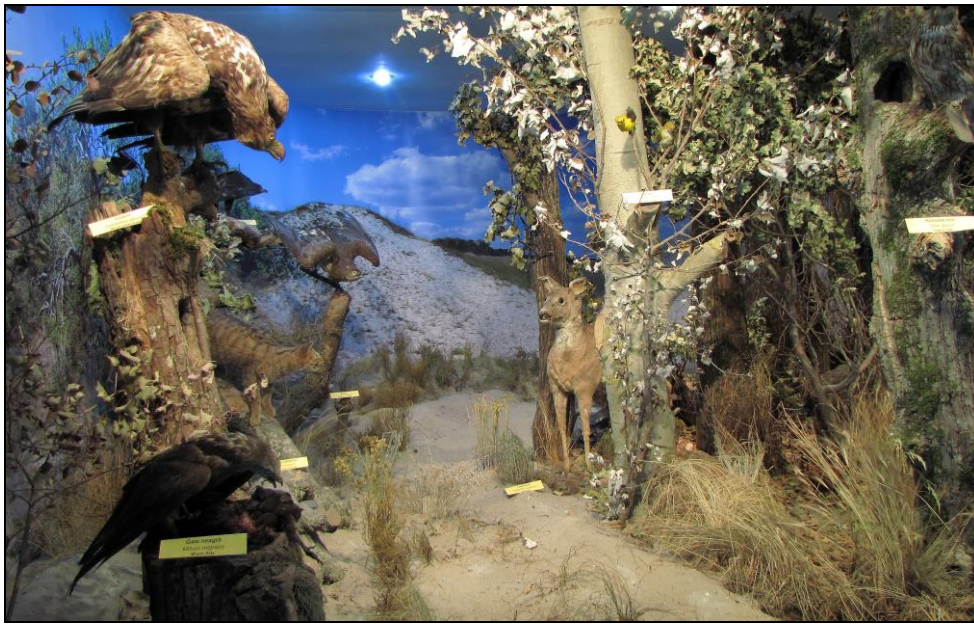


Fig. 7. *Fluvial-Marine Delta* Diorama (photo Valeriu Leonov).

The ***Razim-Sinoie Lagoon Complex Diorama*** (Fig. 8) represents the second important component of the D.D.B.R., located in the southern part of the delta that is in the same time the largest lacustrine complex from Romania. Regarding its genesis, the lagoon complex recomposes at another scale the genesis of the Danube Delta. The most representative habitat for the coastal sand bars is the *Pontic white dunes*. The avifauna is characteristic to the ecosystems of sand dunes partially covered with vegetation, to the coastal sand bar and to the marine beaches (e.g. avocet, oystercatcher, sandwich tern, little tern, shelducks, geese). The faunistic importance of this zone is given also by the presence of fishes, amphibians, reptiles (e.g. European pond turtle, spur-thighed tortoise, lizards) and mammals (e.g. badger, hedgehog, racoon dog, fox). It is presented also the Doloşman Cape, constituted by Cretaceous limestones and is representative for the palaeo-coast of the Black Sea, with a double status of a nature reserve and archaeological reserve. At Doloşman Cape is located the Graeco-Roman city *Orgame/Argamum*.



Fig. 8. *Razim-Sinoie Lagoon Complex* Diorama (photo Valeriu Leonov).

Given the fact that 32 nature reserves are declared in Tulcea County, the high biodiversity, the beauty of the landscapes and the variety of the relief encountered in these protected areas, it was included also in the

permanent exhibition a synthetic diorama-like presentation of two of characteristic habitats of North-Dobruja, protected also at the international level by the EC Habitat Directive, respectively the *Ponto-Sarmatic steppe* and the *Dobrogean Forest with linden and oak species*.

The ***Ponto-Sarmatic Steppe Diorama*** (Fig. 9) presents the most representative habitat for the Steppe bioregion. It is present in the European Union only in the south-eastern part of Romania, mainly in Dobruja. This steppe type has the highest conservation value among the habitats of the Dobruja Plateau, considering also that it concentrates most of the endangered plants of national and European importance, such as the endemic bell-flower *Campanula romanica*, fern-leaved peony or the feather grass *Stipa ucrainica*. Within this habitat there are favourable conditions for the spur-thighed tortoise (nature monument), different rodent species and birds like the great bustard – accidental occurrence, stone curlew and kestrel or for marbled polecat, most of them protected at national and European levels.



Fig. 9. *Ponto-Sarmatic Steppe* Diorama (photo Gabriel Dincu).

***Dobrogean Forest Diorama*** (Fig. 10). In the mountains and plateaux of Northern Dobruja, as the altitude increases, the dry steppes are replaced by two forest massifs, surnamed "*Sultan's Garden*" during the Ottoman period, for their natural resources, aesthetical value and monumental aspect. One of the forest habitats, only found in this region within Europe, is represented by the *Dobrogean oriental hornbeam-lime-oak forests*. These forests are framed within habitats of community interest, due to the typical combination of numerous species dominated by different oaks *Quercus dalechampii*, *Q. polycarpa*, *Q. pedunculiflora* mixed with Oriental Hornbeam *Carpinus orientalis*, silver lime tree *Tilia tomentosa*, manna ash *Fraxinus ornus*, ash *F. excelsior*. Besides these, numerous other trees, shrubs and herbaceous species occur, having complementary ecological requirements that explain the remarkable biodiversity of these forests.



Fig. 10. *Dobrogean Forest* Diorama (photo Gabriel Dincu).

This habitat is the main refuge of several plant species endangered throughout Europe, like the snowdrop *Galanthus plicatus*, or at the national level, such as the peony *Paeonia peregrina*, lady orchid *Orchis purpurea*, *Nectaroscordum siculum* ssp. *bulgaricum*. Among the fauna species that occur in these forests the most important are: common buzzard, black woodpecker, nightjar, grey-headed woodpecker, song thrush, blackcap, jay, wild boar, stone marten and eastern European hedgehog. The wolf is considered extinct in Northern Dobruja, with isolated individuals being observed in the Southern Dobruja forests.

**Ethnographic setting.** The exploitable natural resources of the Danube Delta have attracted people since ancient times, human communities mainly relying on their exploitation, developing traditional economic activities and characteristic social relations. In this diorama, a traditional "cherhana" (fish point collecting) is reconstructed according to the drawings and information left by the great scientist Grigore Antipa in his monumental work "*Fisbery and fishing in Romania*" (1916), which illustrates the main traditional occupation of the inhabitants from Danube Delta – *the fishing*. There are presented: the fishing boat specific to the area – *the lotca* –, tools and instruments used for fishing, for preparing fish and fish products for the markets, as well as fishermen performing various specific activities of fishery (e.g. repairing nets, recording fish catches, roe preparation).



Fig. 11. *Fish point collecting* Diorama (photos Gabriel Dincu).

The **Aquarium** is set up in the basement of the building and presents a collection of aquatic organisms consisting of fishes from Danube Delta Biosphere Reserve's fish fauna, as well as fishes and invertebrates from coral reefs and freshwater fishes from tropical areas. The presentation of the exhibits is done according to the living environment (freshwater species and marine species), the ecology (semi-migratory and migratory species) and the feeding regime (omnivorous/peaceful species and predatory species).



Fig. 12. Migratory and Freshwater fishes from Danube Delta (photo Gabriel Dincu).



Fig. 13. Coral reef and exotic freshwater fishes (photo Gabriel Dincu).



The beneficiaries and the services offered to them by the CMEDD are: *the scientific community* (exchange of experience, transfer of scientific information, access to the institution's databases), *public authorities of administration* (information for carrying out the feasibility studies necessary for the preparation of the documentation requested for accessing the various projects development, as well as for the creation of tourism promotion materials for the area), *central environmental authorities* (formulation of opinions regarding management plans for protected areas in Dobruja, preparation of documentation for the declaration of protected natural areas, reporting of violations of the provisions of the Habitat Directive and the Birds Directive), ***tourists and the local community*** (information about the fluvial and coast area natural heritage, alternatives for spending free time, the formation of a friendly attitude towards nature), *the school public* (consultancy, scientific, didactic and location support for carrying out museum pedagogy and environment education activities – university practices for students from biology faculties, thematic lessons, exhibitions, competitions, carnivals with an ecological theme, workshops, study trips to nature reserves).

All these cultural and scientific services offered by CMEDD are subject to the motto ***Know, Love and Protect!***

## REFERENCES

- Dinu, C. (coord.) 2008, *Planul de amenajare muzeală a Centrului Muzeal Ecoturistic Delta Dunării*, ICEM Tulcea.
- Gâștescu, P., Știucă, R., 2008, *Delta Dunării, Rezervație a biosferei*, București.
- Hotărâre de Guvern nr. 1516 din 19 noiembrie 2008 privind aprobarea *Regulamentului-cadru de urbanism pentru Rezervația Biosferei Delta Dunării*, Monitorul Oficial, Partea I, nr. 838/2008.
- Lista Monumentelor Istorice*, 2015, Anexă la Ordinul Ministrului Culturii nr. 2.828/2015, pentru modificarea anexei nr. 1 la Ordinul ministrului culturii și cultelor nr. 2.314/2004, privind aprobarea *Listei monumentelor istorice*, actualizată, și a *Listei monumentelor istorice dispărute*, cu modificările ulterioare, Ministerul Culturii, M.Of.R., Partea I, nr. 113 bis/2015, vol. II, p.2508-2563, Județul Tulcea.
- Strategia integrată de dezvoltare durabilă a Deltei Dunării*, Raport sinteză – document pentru consultare publică, M.D.R.A.P., 2015.