pp. 61-74

8. Danube Delta Biosphere Reserve: archaeological patrimony

MICU Cristian[1], AILINCĂI Sorin-Cristian[1], CAROZZA Laurent[2], STĂNICĂ Aurel[1]

[1] *Institutul de Cercetări Eco-Muzeale „Gavrilă Simion", str. Progresului, nr. 32, 820009, Tulcea, România, e-mail: cristianmicu72@gmail.com*
[2] *UMR 5602 - Géographie de l'Environnement. Maison de la Recherche de l'Université du Mirail 5, Allées A. Machado - 31058 Toulouse Cedex 1, e-mail: carozza.laurent@wanadoo.fr*

Abstract: Danube Delta Biosphere Reserve is home of an impressive number of archaeological and historical sites. The earliest traces of human presence on this territory date back to the Middle and Late Paleolithic. Such traces are rare and concentrated around the present-day Babadag Lake. From then on, the number of archaeological sites in the reserve's areal rises at an inconstant pace, especially within the Delta. The analysis of the results of the archaeological surveys conducted starting with the second half of the 20th century contributes consistently to projecting an outline of the evolution of the population that lived in the reserve areal. There is an obvious and categoric difference in the nature and size of the anthropic factor along the ages. During the Eneolithic, Iron Age, Roman period and Middle Ages, human communities were very dynamic – given the remarkable number of known sites – and exploited natural resources on a large scale. Both household and funerary spaces are clearly marked, and sometimes even associated in various forms.

Keywords: Danube Delta, archaeology, population dynamics.

INTRODUCTION

Without doubt, the Danube Delta is a symbol of biodiversity, a continuously transforming land that has been submited over the ages to the influence of the anthropic factor (Carozza et al., 2011; Micu et al., 2009; Simion, 1971).

The Danube Delta Biosphere Reserve is home of rich but insufficiently researched archaeological and historical patrimony (Carozza et al., 2011), even though the management of the reserve areal requires thorough knowledge of the features and contributions of humans to shaping this land. In this context, it should be mentioned that archaeological research from a multi- and interdisciplinary approach brings significant information about the evolution of flora, fauna, climate, hydrology, landscape and impact of human societies on the environment, over clearly delimited periods of time (Carozza et al., 2014; Carozza, Bem, Micu, 2011). Based on this reality, it is our belief that a diachronic approach is required in the study of human communities in the areal of the Danube Delta Biosphere Reserve. More specifically, this paper aims to catalogue the archaeological sites in the studied areal to reveal the population dynamics throughout the main historic periods. We also set out to recommend several research directions, from an archaeological point of view, in the analyzed areal.

Brief research history

The first archaeological survey in the Danube Delta Biosphere Reserve was recorded at the end of the 19th century (Polonic, 1935). At the beginning of the 20th century, the surveys mainly focused on ancient and medieval sites, such as Histria (Angelescu and Avram, 2014), Orgamé/Argamum (Mănucu-Adameşteanu, 1992) or the medieval citadel at Enisala (Barnea and Ştefănescu, 1971). In the post WWII period, the number of archaeological surveys grew spectacularly, as northern Dobroudja became very attractive for research institutions in Romania. In this context, we should mention the investigations at the neo-eneolithic sites at Ceamurlia de Jos and Baia/Hamangia, ascribed to different phases of Hamangia culture (Berciu, 1966), as well as the ancient and medieval sites at Murighiol – *Halmyris* (Suceveanu et al. 2003), Isaccea – *Noviodunum* (Barnea and Barnea, 1984), Tulcea – *Aegyssus* (Opaiţ, 1977) and Nufăru – *Prislav* (Damian et al. 2003). In the same period the first archaeological surveys in the areal of the Danube Delta were conducted, revealing numerous traces of habitation from the ancient and medieval period (Simion, 1971). The study of the evolution of the Danube Delta from an archaeological perspective is a relatively new pursuit, brought to the

forefront by the French-Romanian project *Delta du Danube. Societé et environement dans la zone du Bas Danube* (Carozza et al., 2011).

MATERIALS AND METHODS

Our endeavour aims to identify and catalogue the archaeological sites revealing, within the Danube Delta Biosphere Reserve, the presence of humans from the Paleolithic to the end of the Ottoman period in Dobrudja (1878). Through older and novel field investigations and through study of the literary and cartographic sources, we set out to establish a database that can represent the starting point for the analysis of population dynamics, in the proposed study area. We have taken into consideration that, pursuant to legislation in force, Danube Delta Biosphere Reserve consists of the following geographical units: the Danube Delta; maritime Danube up to Cotul Pisicii; Isaccea-Tulcea sector, including the flood land; Murighiol-Plopu saline marshes; Razim-Sinoe lagoon; Black Sea littoral from Chilia arm up to Cape Midia (**Fig. 1-2**).

Regarding the chronological landmarks, we have considered the data specific to northern Dobrudja, which is known, *inter alia*, for its rich and remarkable archaeological patrimony. Based on the numerous finds, we were able to establish a few historic phases in the evolution of this territory:

I. The earliest material proofs of human presence in northern Dobrudja date back to the **Paleolithic**, embodied in the Middle and Late Paleolithic cultures, as well as to the **Mesolithic** (cca. 100 000 – 11th millennium A.D.) (Păunescu, 1999);
II. **Neolithic** and **Eneolithic** (5th -4th millennium A.D.), characterized by finds specific to cultures: a. Hamangia, Boian; b. Gumelniţa; c. Cernavodă I (Hasotti, 1997);
III. **Bronze Age** (middle/late 3rd millennium – late 2nd millenniun A.D.) can be divided into two main phases: a. Early and Middle Bronze Age, with tumulus and flat burials specific to Jamnaja and Katakomnaja cultures (3500-1800 A.D.); b. Late Bronze Age, with finds ascribed to Noua-Coslogeni cultures (18th-12th century A.D.) (Morintz, 1978);
IV. **First Iron Age** (11th-5th century A.D.) can be divided into two phases: a. early period, with finds ascribed to Babadag culture and Basarabi phenomenon (11th-8th century A.D.); and b. late period (7th-5th century A.D.), characterized by Greek imports and the arrival of the first Greek colonizers (Ailincăi, 2013; Buzoianu, 2001);
V. **Second Iron Age** (4th-1st century A.D.) is strongly influenced by Greek civilization (Avram and Poenaru Bordea, 2001);
VI. In the **Roman period** (late 1st century A.D.-early 7th century B.C.), the province was part of the Roman Empire. This period can be divided into: a. Early Roman period (1st-3rd century B.C.) and b. Late Roman period (4th-early 7th century B.C.) (Suceveanu, 1977; Suceveanu and Barnea, 1991; Bărbulescu, 2001);
VII. The **Middle Ages** (7th-19th century): a. Early period (7th-10th century); b. Middle Byzantine period (11th-14th century); c. Ottoman period (15th-19th century) (Dănescu, 1896; Ghiaţă, 1978; Ghiaţă, 1982; Ionescu, 1904; Dumitraşcu, 1996; Stănică, 2015).

We should also point out that an archaeological catalogue based on the systematic research of the studied territory, clear identification of the coordinate inventory for all archaeological sites, which, coupled with solid knowledge of the chronological sequences, may contribute to proposing a possible scenario regarding the dynamics of the occupation and exploitation of a specific geographic area by human communities. Therefore, after finalizing the documentary diagonstics, as of 2007, we have implemented a systematic field evaluation within the Danube Delta Biosphere Reserve. The evaluation consists of two working stages:

- Field trip to identify and register the spatial distribution of the archaeological material above ground. In order to determine the points forming the perimters of the archaeological sites, a referential GPS - Magellan ProMark3 with centimetric precision was used. The measurements were taken using the WGS 1984 coordinates system. In general, at least five GPS points were measured per individual archaeological site;
- Unloading the data from the WGS 84 system, post-processing and conversion into Stereo 70 system, on Krassowski ellipsoid, Black Sea 1975 altimetric reference system, and reporting in plan.

The usage of available data in specialized literature, data bases of older research and various archives, the verification of such data on the field and the realization of a new inventory of the archaeological sites through systematic field evaluations individualize our endeavor against other studies made to this day in the Danube Delta Biosphere Reserve (Dimitriu, 2012).

RESULTS AND DISCUSSIONS

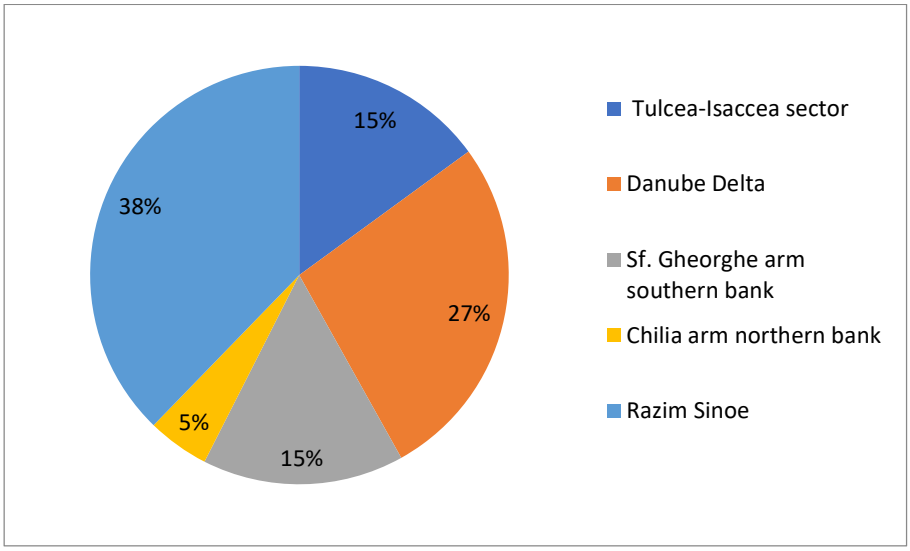
In our endeavour, we have succeeded to identify 167 archaeological sites dating human presence in the areal of the Danube Delta Biosphere Reserve from the Paleolithic until the end of the Ottoman period (1878), throughout the historic timeline detailed below (**Table 1**). Our information is obtained from both written sources and novel field investigations on the territory of Tulcea County, covering the area of Tulcea Municipality and communes Niculițel, Somova, Beștepe, Pardina, Chilia Veche, Crișan, Maliuc and Nufăru. Therefore, our documentation is somewhat unevenly spread over the researched areal, and the results of our analysis can be constantly updated with new field surveys.

Location of archaeological sites

Broadly, we can divide the analyzed areal into several zones. The most numerous archaeological sites have been identified on the bank of Razim-Sinoe lagoon (63 sites), followed by sites in the actual delta (45 sites identified between Chilia and Sf. Gheorghe arms), with higher concentration on Chilia, Letea, Caraorman and Stipoc crevasse-spaly deposits (**Fig. 1/1**). A special density of human settlements was also identified in Tulcea-Isaccea sector, the flood land (25 sites). Fewer sites were catalogued on the northern bank of Chilia arm (8 sites), because, in the absence of field investigations, our information for this areal relied solely on written sources (**Graphic 1**).

Settlements vs. chronological sequences

Of the total 167 identified sites, almost half (83) incorporated a single chronological sequence, while the rest included two (39) or even three (20) chronological sequences (**Graphic 2**). There are clues that some sites held a special strategic position, hence human presence continued over several chronological sequences, sometimes uninterruptedly (**Table 1**). To this effect, we remark the human presence in the Eneolithic site at Taraschina until the modern age, with a gap between the Late Bronze Age and First Iron Age. The site has had an interesting evolution: after lasting inhabitation on several layers (even up to approx 3m deep) during the Eneolithic (Carozza et al. 2014), in the Early and Middle Bronze Age, the present-day creveasse-splay deposit served as a cemetery. Subsequent human presence was seasonal, over brief periods, as the site was probably used by fishermen and hunters to set camp, or by farmers for various crops.



Graphic 1. Comparative situation of the archaeological sites in the Danube Delta Biosphere Reserve by geographical units.

Signs of intense habitation were found in the areas corresponding to sites Isaccea – *Noviodunum*, Istria – *Histria*, Jurilovca – *Orgamé/Argamum*, Nufăru – *Proslavița*, but also to less known sites, such as Sarichioi – *La Bursuci*, Tulcea – *Dealul Taberei* or Babadag – *Cetăţuie*. The identification of the factors that favoured the presence of human communities in the above-mentioned locations, over several historic periods, should constitute a separate theme of research.

The Danube Delta and the human communities throughout the ages

If we consider every chronological sequence of every registered archaeological site, the total number of sequences of human presence is 354. **Graphic 3** shows a linear evolution of the number of sites from the Paleothic to the Middle Ages. This might also correspond, in direct ratio, to demographic growth.

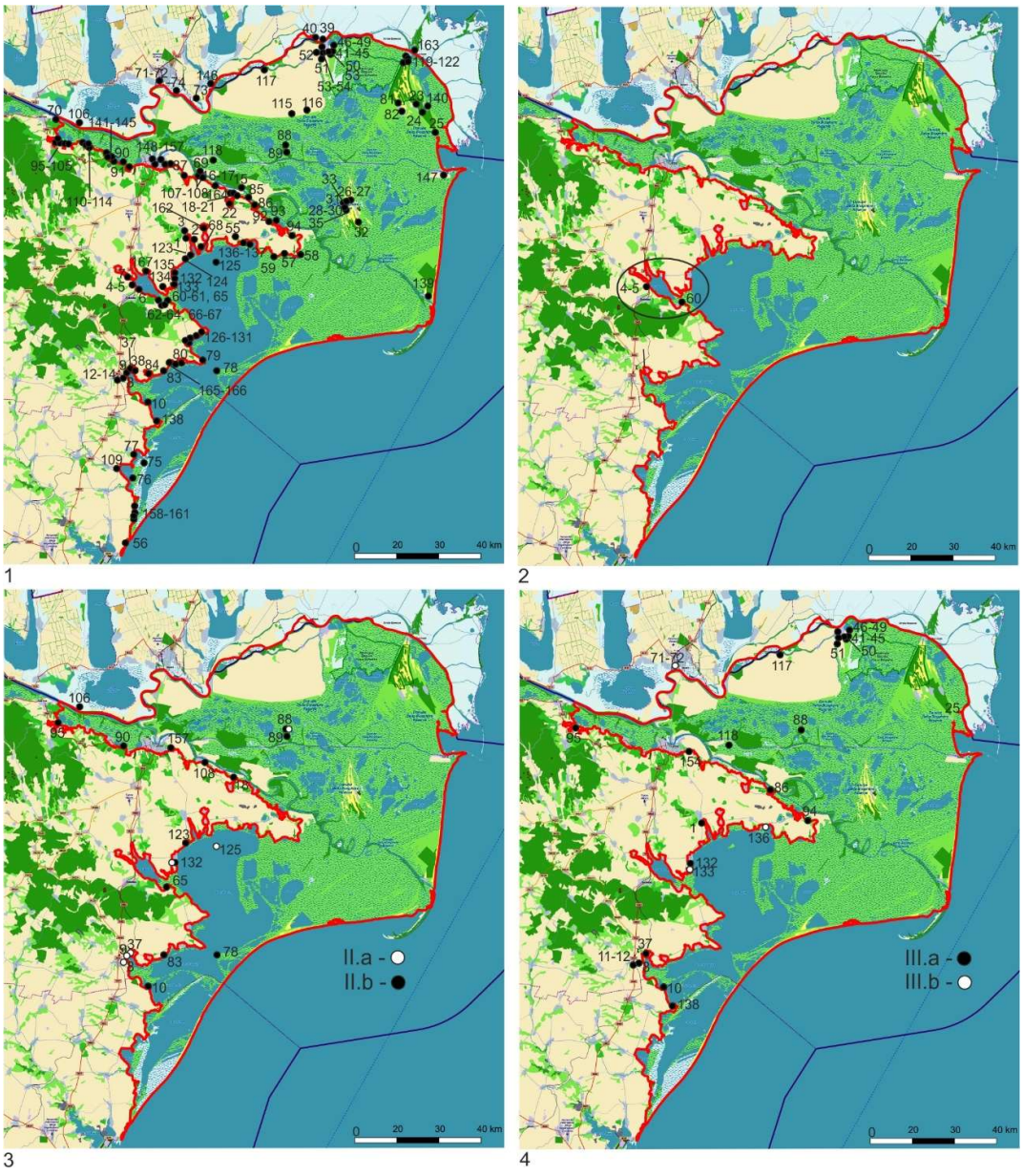


Figure 1. Archaeological sites identified in Danube Delta Biosphere Reserve: 1. Map of sites dated from the Paleolithic until the end of the Ottoman period (1878); 2. Map of Paleolithic sites; 3. Map of neo-eneolithic sites; 4. Map of Bronze Age sites.

While the finds ascribed to the Paleolithic are scarcer and consisting mainly of isolated finds in the vicinity of present-day Babadag Lake (**Fig. 1/2**), in the Eneolithic period, human presence on the southern bank of the Danube (between Isaccea and Tulcea) intensified, as the series of finds continued along Sf. Gheorghe arm and on the western bank of Razim-Sinoe lagoon.

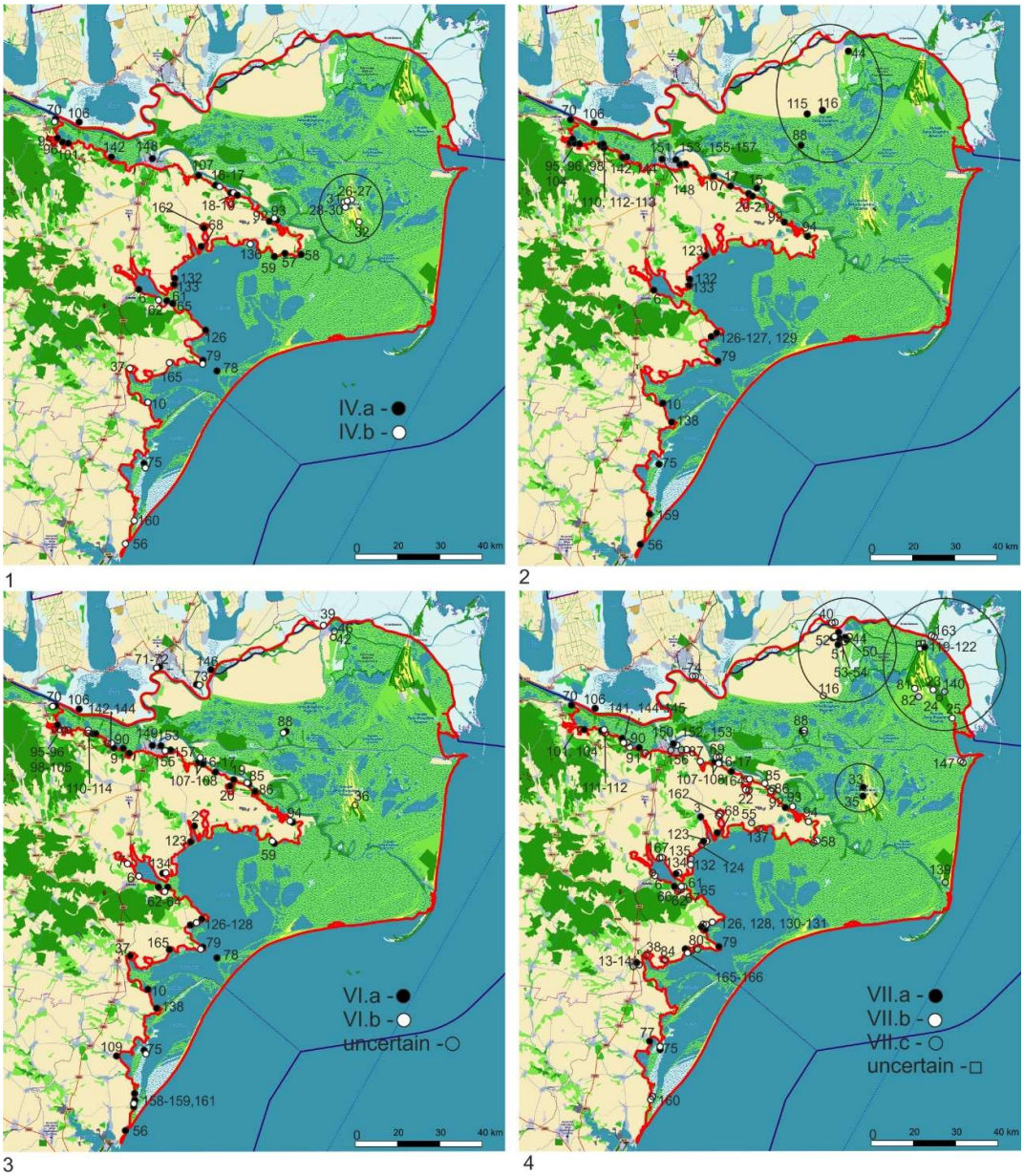


Figure 2. Archaeological sites identified in Danube Delta Biosphere Reserve: 1. Map of First Iron Age sites; 2. Map of Second Iron Age sites; 3. Map of Roman period sites; 4. Map of medieval sites.

Traces of settlements from the Bronze Age, especially from the Early and Middle Brozne Age, are absent, but the presence of human communities is attested especially by the numerous tumuli, sometimes forming large necropolises. Some researchers considered that this change was due to wide-scale husbandry, which led to a nomad lifestyle. From this period, traces of human presence were found on Chilia crevisse-splay deposit, where funerary spaces recorded remarkable density (Vasiliu, 1995; Motzoi-Chicideanu, 2011). Several human bones from Taraschina site and probably the unindentified mounds at Pardina (catalogue no. 117) and Partizani (catalogue no. 118) date back to the same period.

In the Late Bronze Age, only a few scarce human presence traces are recorded in northern Dobrudja, as well as in the studied areal (**Fig. 1/4**).

Starting with the end of the 11th century A.D., a new demographic “boom” occurred, documented in the sites ascribed to Babdag culture (10th-8th century A.D.) (Ailincăi, 2013). The new population preferred to live on the higher banks of the Danube and of the present-day Razim-Sinoe lagoon (**Fig. 2/1**).

New human presence in the Danube Delta is documented on Caraorman marine levee in the 5th century A.D., and can be assigned to the Greek navigators. The density of archaeological sites gradually increases during the Second Iron Age, especially along Sf. Gheorghe arm and of Razim-Sinoe lagoon. In the same period, traces of habitation appear on Chilia and Stipoc crevasse-splay deposits, as well as at the site of Taraschina (**Fig. 2/2**).

Roman period archaeological sites are concentrated especially on the right bank of the Danube and of Tulcea and Sf. Gheorghe arms, which formed the border of the Roman Empire. Most of the finds from the north of the Danube are ascribed to Sântana de Mureş – Cerneahov culture, associated with the Gothic tribes. At the same time, finds within the Danube Delta are scarce, while human presence was intense on the bank of present-day Razim-Sinoe lagoon (**Fig. 2/3**).

Human presence on the right bank of the Danube and of Sf. Gheorghe arm, as well as around Razim-Sinoe lagoon intensifies as of Middle Ages. This is when human presence intensifies in the Danube Delta, as proven by the finds from Letea, Chilia, Caraorman and Stipoc marine levee. The novelty for this areal is the fortified centre at Chilia. We should also mention the human settlements at Sulina and Sf. Gheorghe (**Fig. 2/4**).

CONCLUSIONS

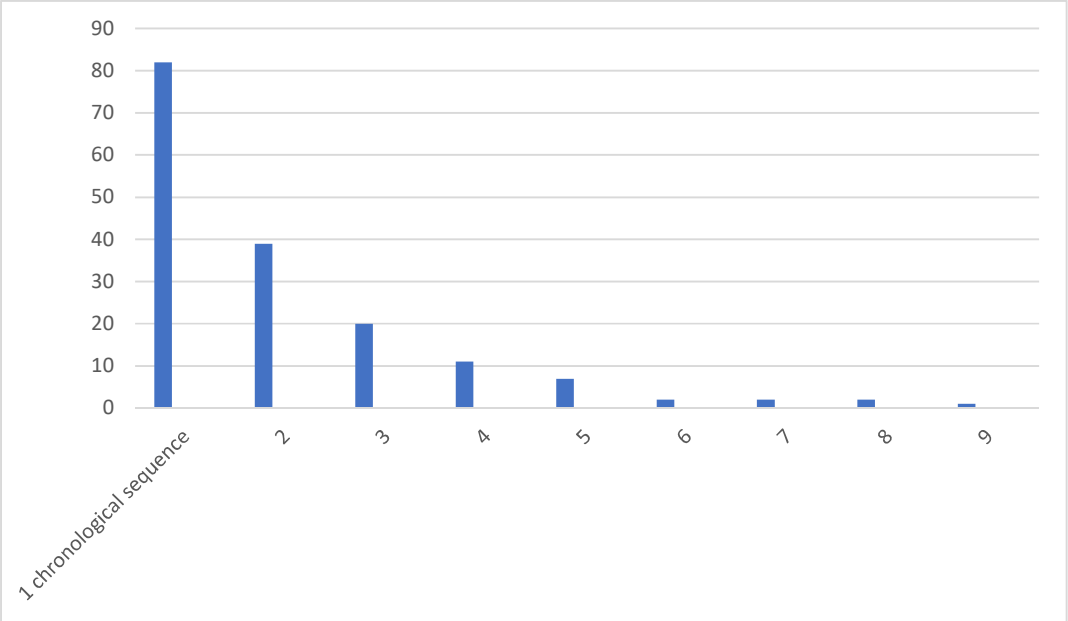
The analysis of the data resulted from the archaeological surveys conducted throughout the years could lead to a certain scenario regarding human populations in the studied areal. There is an obvious and categoric difference in the nature and size of the anthropic factor along the ages. During the Eneolithic, Iron Age, Roman period and Middle Ages, human communities were very dynamic – given the remarkable number of known sites – and exploited natural resources on a large scale. Both household and funerary spaces are clearly marked, and sometimes even associated in various forms.

The impact of the anthropic factor on the environment is, apparently, rather low. The impact of the human presence in the Bronze Age on the landscape can be mostly determined by the study of the funerary complexes (the tumuli).

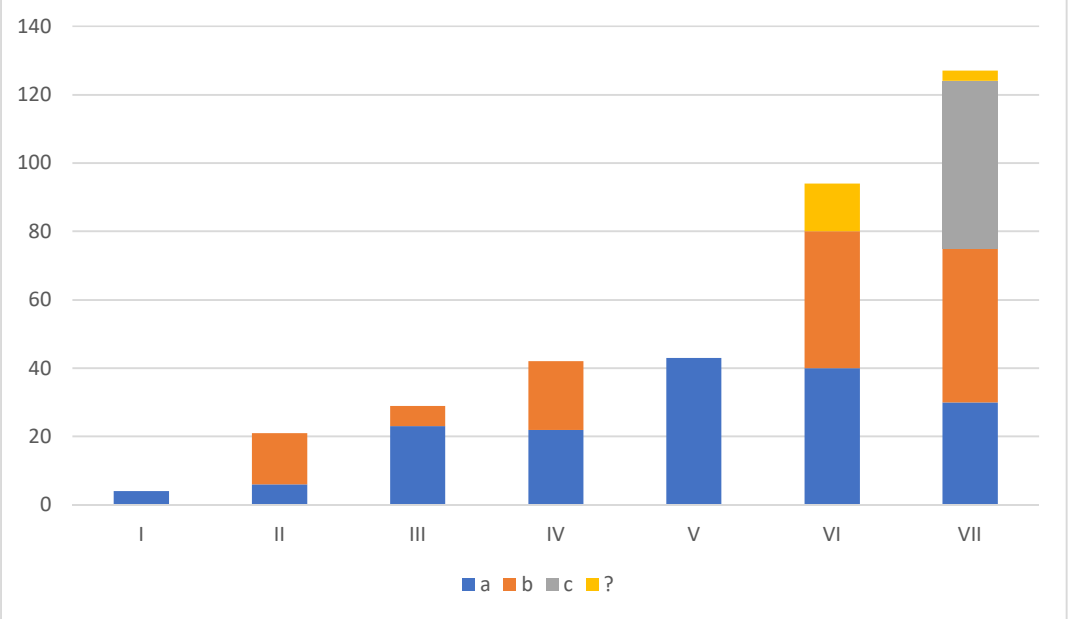
The proposed scenario for the Danube Delta Biosphere Reserve could be supported to some extent by the ascertained regional developments, especially in the northeastern area of the Balkanic Peninsula, southeastern Romania and the northern region of the Black Sea. Nevertheless, we should mention that finds are greatly influenced by the type of archaeological surveys conducted in the Danube Delta Biosphere Reserve and in its immediate vicinity. So far, only one major project – "Delta du Danube", the fruit of the cooperation between UMR 5602 Geode Toulouse and "Simion Gavrilă" Eco-Museum Research Institute Tulcea – established as general objective the study of the evolution of prehistoric communities on the territory of the Danube Delta in a global integrated manner (Carozza et al. 2011).

Much of the registered data is the result of field investigations. Until the early 21st century, the investigations had been concentrated on small areas, mostly on the banks of the Danube, of the Razim-Sinoe lagoon and on the immediate vicinities of the archaeological sites where systematic archaeological surveys were contucted (Comșa, 1953). It was only in the past 7 years that a survery programme in northern Dobrudja has been developed to investigate the entire areal.

We should also mention that most of the archaeological investigations did not consider the transformations that the environment and landscape went through along the ages, especially in the area of the Lower Danube and the Danube Delta. Nevertheless, in the past few years, several papers followed this research direction (Carozza et al. 2011; Vespremeanu-Stroe et al. 2013). In fact, with very few exceptions, (systematic or preventive) archaeological projects lacked the inter- and multidisciplinary dimension. Such approach could change the investigative strategy in archaeology and, implicitly, the proposed classic scenario for human presence in the Danube Delta Biosphere Reserve.



Graphic 2. Comparative situation of the number of chronological sequences documented in the investigated sites.



Graphic 3. Comparative situation of the chronological sequences documented in the analyzed sites.

Research perspectives

Considering the observations above, we deem opportune to propose the reorientation of research (not just of archaeological research) in the Danube Delta Biosphere Reserve towards the inter- and multidisciplinary study of the relathionship between human communities and environmental transformations. In fact, future projects should take into consideration at least one of the following research approaches:

- Establishing a paleogeographic, environmental and climate framework for the Lower Danube area, in order to synchronize the pace and frequency of social, economic and environmental changes from the Early Neolithic until the end of the Middle Ages;
- Studying the incidence of an increased Black Sea level on the transformations of the fluvial system (the course of the Danube and of its direct tributaries) in the Holocene;

- Mapping the human population in the studied area based on archaeological and paleo-environmental indicators, specifying the functional features (functional approach of spaces and tools) and integrating them in a territorial model;
- Specifying the organization of the territory with the aid of material indicators (raw material sourcing), characterizing the economic systems in relation to the technological innovation processes;
- Drawing up a coherent chronological framework for defined cultural realities, identifying cultural features of the corresponding populations and establishing their ties with contemporary cultural ensembles;
- Defining the economic criteria of fauna and flora, of biodiversity exploitation, and determining the adaptation strategies of societies to environmental and social changes.

Protecting the archaeological patrimony

Not lastly, we need to draw attention on the necessity to protect archaeological monuments, for which interinstitutional collaboration is essential. Given the above, we deem absolutely necessary the registration of all archaeological finds in the National Archaeological Inventory and Historic Monuments List. Such endeavour should be doubled by marking all archaeological finds in the field pursuant to the legal provisions in force to increase their visibility and awareness for the public. In many cases, archaeological sites are in a poor state of preservation and require rescue actions. In this context, we recommend that all investment projects on the territory of Danube Delta Biosphsere Reserve should comply with national legislation for the protection of archaeological sites.

Table 1. Catalogue of archaeological sites identified in Danube Delta Biosphere Reserve

	Name	Type	I	II		III		IV.		V	VI		VII		
				a	b	a	b	a	b		a	b	a	b	c
1	Agighiol – 1 km south	tumulus				?				?					
2	Agighiol –1.5 km southeast	settlement									×				
3	*Agighiol-Habji Gheoli*, *Hagighiol*, *Adschigjöl*, *Aici-göl*	settlement													×
4	Babadag	isolated finds	×												
5	Babadag	isolated finds	×												
6	Babadag – *Cetăţuie*	settlement, necropolis						×		×		×		×	×
7	Babadag – *Topraichioi*	fortification, settlement										×			
8	Baia – *drumul vacilor*	settlement / tumulus		×		×									
9	Baia – lacul Goloviţa	settlement		×											
10	Baia – *Acik Suhat*	settlement			×				×	×	×				
11	Baia –1.5 km east	tumuli - necropolis				?									
12	Baia – inbetween Baia and Goloviţa Lake	tumuli - necropolis				?									
13	Baia	necropolis, settlement											×		×
14	Baia – *Hamangia*	settlement													×
15	Băltenii de Jos	settlement								×					
16	Băltenii de Sus –Dunării flood plain	settlement						×				×		×	
17	Băltenii de Sus –650 m southwest	settlement							×	×	×			×	
18	Beştepe – *Piatra lui Boboc*	settlement			×			×	×						
19	Beştepe – *Piatra lui Sava*	settlement						×			×				
20	Beştepe – northern limit	settlements								×	×				
21	Beştepe – *Cetate*	fotification								×					

22	Beştepe – *Beschtepe, Best(i)pe turque, Bestepe*	settlements												×	×
23	C. A. Rosetti–*Sălişte a lui Cârlan*	settlements												×	
24	C. A. Rosetti–*Yeni-köy, Satu Nou*	settlements													×
25	Cardon – *Sălişte a lui Trişcă*	settlements												×	
26	Caraorman – *Somova*	tumulus							×						
27	Caraorman – north of the crevasse-splay deposit	tumulus							×						
28	Caraorman – west	settlement							×						
29	Caraorman – *Beresche*	tumulus							×						
30	Caraorman – *Beresche sud*	settlement							×						
31	Caraorman – *Uzum*	tumulus							×						
32	Caraorman – *La doi stejari*	tumuli							×						
33	Caraorman – *La Zaiţova*	settlement											×		
34	Caraorman – pe grind	isolated find			?										
35	Caraorman – la 1,2 km vest	isolated find											×		
36	Caraorman – the crevasse-splay deposit	isolated find									×				
37	Ceamurlia de Jos – *La pod*	settlement, tumulus		×		×			×		×				
38	Ceamurlia de Jos														×
39	Chilia Nouă – sud-est de oraş	settlement										×			
40	Chilia – *Cetatea Chilia*	fortification												×	×
41	Chilia Veche – southeast	tumulus				×									
42	Chilia Veche – *Movila Rascopanca*	tumulus, urme de locuire				×					×				
43	Chilia Veche – *Movila din Palisica*	tumulus				×									
44	Chilia Veche – *Movila lui Cutoc*	tumulus, urme de locuire								×					×
45	Chilia Veche – *Movila de la poligon*	tumulus				×									
46	Chilia Veche – *Movila la medic*	barrow, habitation traces				×					×				
47	Chilia Veche – east	tumulus				×									
48	Chilia Veche – east	tumulus				×									
49	Chilia Veche – east	tumulus				×									
50	Chilia Veche – *Cotul Hreblea*	tumulus				×									
51	Chilia Veche – *Ciorticut*	tumulus, Necropolis				×							×		
52	Chilia Veche – *Byziantin and Genovese settlement*	settlement											×	×	
53	Chilia Veche – *Kili, Eski-Kili*	settlement											×	×	×
54	Chilia Veche – *Câşla*, south	settlement												×	×
55	Colina – *Caraibil*	settlement													×
56	Corbu –3.5 km south-southeast of the village	settlements							×	×	×				
57	Dunăvăţul de Jos –3 km west, on Razim Lake shore	settlement								×					
58	Dunăvăţul de Jos – *Dounavetz, Dunaveç*	settlement												×	×
59	Dunăvăţul de Jos – *Cetatea Zaporojenilor*	fortification									×	×			

60	Enisala – *dealul Gras*	isolated find	×												
61	Enisala – *Cetatea medievală*	fortificaţie						×						×	×
62	Enisala – *La Biserică*	settlement, necropolis							×		×				×
63	Enisala – *La Peşteră*	fortification, necropolis										×			
64	Enisala – *la Troiţă*	necropolis										×			
65	Enisala – *Palanca*	settlement, necropolis			×			×						×	
66	Enisala – *terenul de fotbal*	settlement											×		
67	Enisala – *Yeni-sala, Ienisala, Ieni-Kale*	Settlement													×
68	Iazurile –1.5 km southwest	settlement													×
69	Ilganii de Jos	settlement, fortification											×	×	
70	Isaccea – *Noviodunum*	fortification, settlement, necropolis						×	×	×	×	×	×	×	×
71	Ismail – 1	settlements					×				×	×			
72	Ismail – 2	settlements					×				×	×			
73	Ismail – *Kopanaja Balka*	settlement									×	×			
74	Ismail – *Cetate*	fortification, settlement												×	×
75	Istria – *Histria*	settlement, necropileis, fortifications						×	×	×	×	×	×	×	
76	Istria – inbetween lakes Nuntaşi and Histria	settlement								×					
77	Istria (Histria) – *Capul Viilor*	settlement, necropolis											×		
78	Jurilovca – *Insula Bisericuţa*	fortification, settlements			×			×				×			
79	Jurilovca – *Orgamé/Argamum*	settlement, fortifications, necropoleis						×	×	×	×	×	×		
80	Jurilovca	settlement													×
81	Letea – *Grădina lui Roman*	settlement												×	
82	Letea	settlement													×
83	Lunca –*Tell*	settlement			×										
84	Lunca	settlement													×
85	Mahmudia – *Salsovia*	settlement, fortification									×	×		×	
86	Mahmudia – *Intravilan Beştepe românesc Bestepe valaque, Mahmudié, Mahmudya*	settlement, necropolis				×						×		×	×
87	Malcoci – 500 m west													×	
88	Maliuc – *Taraschina*	settlement		×	×	×				×	×	×	×	×	×
89	Maliuc – *Dâmbul lui Haralambie*	settlement			×										
90	Mineri – approx 750 m northwest	settlement			×										
91	Mineri – *Kichla*, *Cîşlele*, *Cîşla*, *Câşla*	settlement													×
92	Murighiol – *Ghiolul Pietrei*	settlement					×	×	×	×			×		
93	Murighiol – *Grindul Moroianu*	settlement						×					×	×	
94	Murighiol – *Halmyris*	settlement, fortification, necropolis				×				×	×	×		×	
95	Niculiţel – *Cornet*	settlements			×	×		×		×	×				

96	Niculiţel – *la Boroană*	settlements						×		×	×				
97	Niculiţel – pe malul lacului 1	settlements													
98	Niculiţel – *Ceairul lui Iancu*	settlements								×	×				
99	Niculiţel – *Gorgonel*	settlements									×				
100	Niculiţel – on lake 2 bank	settlements									×				
101	Niculiţel – on lake 3 bank	settlements						×			×		×		
102	Niculiţel –Saon Monastery 1	settlements									×				
103	Niculiţel –Saon Monastery 2	settlement									×				
104	Niculiţel –Saon Monastery 3	settlements								×	×				×
105	Niculiţel – Valea Capaclia	settlement									×				
106	Novosel'skoe –*Teraphont*	settlements			×			×		×	×				
107	Nufăru – *Preslav, Proslavița*	settlement, fortification, necropolis						×		×	×	×	×	×	
108	Nufăru – *Romula*	settlement			×						×			×	×
109	Nuntaşi – Nuntaşi Băi II	settlement									×				
110	Parcheş – approx 600 m west	settlement								×	×				
111	Parcheş – on the eastern slope of Iarbă Dulce Hill	settlements										×	×		×
112	Parcheş – in the northwest area *Partich, Parkish, Parcăș,*	settlement, necropolis								×	×			×	×
113	Parcheş –600 m east	settlements								×	×				
114	Parcheş –1.74 km east	settlement										×			
115	Pardina – *Băclăneştii Mari*	settlement								×					
116	Pardina – *Stipoc*	settlements								×					×
117	Pardina – Movila lui Slaon	tumulus				?									
118	Partizani – *Păpădia*	tumulus				?									
119	Periprava – *Săliştea târla popii*	settlement												×	
120	Periprava – *Târla roşie*	settlement												×	
121	Periprava – *capul Ghiolului nebun*	settlement												×	
122	Periprava – *grădina lui Omer*	settlement											×	×	
123	Sabangia – *Fântâna lui Ialnăscu*	settlements			×					×	×		×	×	
124	Sabangia – *Sahandja, Zabance(a), Sabandschi, Sabanca*	settlement													×
125	Sabangia – *Insula Popina*	settlement		×											
126	Sălcioara – *Călugăra*	settlements						×		×	×		×	×	
127	Sălcioara – *Capul Iancina*	settlement										×			
128	Sălcioara	settlements								×	×	×	×	×	
129	Sălcioara –4.5 km north	group of six tumuli								?					
130	Sălcioara – 2.5 km northeast	settlement											×	×	
131	Sălcioara – *Caramanchioi*	settlement													×
132	Sarichioi – *La Bursuci*	settlements, necropolis		×	×	×	×	×		×			×	×	
133	Sarichioi – *La Grădină*	settlements					×	×		×					
134	Sarichioi – *Valea Sărătura*	settlements									×	×	×	×	
135	Sarichioi – Siriteny, Sari-köy,	settlements													×
136	Sarinasuf – 800 m east	settlements					×		×						
137	Sarinasuf – *Saranus, Sarnotu, Sari-Nasuh*	settlements												×	×
138	Sinoe – *Dealul Cale*	settlement								×	×				
139	Sf. Gheorghe – *S. Giorgio, Hizir-Ilyas, Kadarlez*	settlement													×
140	Sfiștofca – *Orta-köy*	settlement													×
141	Somova –1.60 km northwest	settlement											×	×	
142	Somova – northeast	settlements						×		×	×				

143	Somova – north	settlement			?										
144	Somova – *La Puierniţă*	settlements								×	×	×	×		
145	*Somova – Samova, Somova*	settlement													×
146	Staraja Nekrasovka	settlement										×			
147	Sulina – *Soulina*	settlement												×	×
148	Tulcea – *Dealul Taberei*	settlements						×		×	×	×	×	×	×
149	Tulcea – *La vărărie*	settlement									×				
150	Tulcea – *Uzina de feroaliaje*	fortification													×
151	Tulcea – *Vest*	necropolis								×					
152	Tulcea – town	settlement												×	×
153	Tulcea – *Aegyssus*	settlement, fortification								×	×	×	×		×
154	Tulcea – *Lacul Zaghen*	isolated find				?									
155	Tulcea – *Via judecătorului*	settlement								×	×	×			
156	Tulcea – *Km 3-4*	settlements								×					×
157	Tulcea – Carniprod farm	settlements			×					×	×				
158	Vadu – cca. 2 km south	settlements									×	×			
159	Vadu – cca. 5 km northeast	settlement									×	×			
160	Vadu – *Ghiaur Chioi (Karaharman)*	settlement, fortification, necropolis							×					×	×
161	Vadu – *Vicus Celeris*	settlement									×	×			
162	Valea Nucarilor (Sarighiol)	settlement												×	×
163	Vâlkov – *Gura Lupului*	settlement												×	×
164	Victoria – west	settlement												×	×
165	Vişina – eastern limit	settlements							×		×		×	×	
166	Vişina – *Paşa Câşla*	settlement												×	×
167	Zebil	settlement												×	×

REFERENCES

Ailincăi S.C., 2013. Începuturile epocii fierului în Dobrogea. Studii şi Cercetări de Istorie Veche şi Arheologie, 64, (3-4), pp. 223-292.

Angelescu M., & Avram A., 2014. Histria – un siecles de recherches. Materiale şi Cercetări Arheologice S.N., 10, pp. 35 – 49.

Avram A., & Poenaru-Bordea Gh., 2001. Coloniile greceşti din Dobrogea. in Istoria Românilor. Vol. I. Moştenirea timpurilor îndepărtate, Ed. Academiei, Bucureşti, pp. 533-634.

Barnea I., & Barnea Al., 1984. Săpăturile de salvare de la Noviodunum. Peuce, 9, pp. 97-105; 503-518.

Barnea I., & Ştefănescu R., 1971. Din istoria Dobrogei. Vol. III. Bizantini, români şi bulgari la Dunărea de Jos. Bucharest, Ed. Academiei.

Bărbulescu M. 2001. Viaţa rurală în Dobrogea romană (sec. I-III p.Chr.). Constanţa.

Berciu D., 1966. Cultura Hamangia. Bucharest, Ed. Academiei.

Buzoianu L., 2001. Civilizaţia greacă în zona vest-pontică şi impactul ei asupra lumii autohtone (sec. VII-IV a.Chr.). Constanţa, Ovidius University Press.

Carozza L., Bem C., Micu C. (eds.), 2011. Société et environnement dans la zone du Bas Danube durant le 5ème millénaire avant notre ère. Iași, Ed. Universității „Alexandru Ioan Cuza",

Carozza L., Micu C., Haită C., Ailincăi S., Burens A., Mihail F., Carozza J.-M., 2014. Reconnaissance par carottages de la stratigraphie des habitats pluri-stratifiés de Taraschina dans le delta du Danube. Dacia N.S. 58, pp. 13-27.

Comșa E., 1953. Contribuție la harta arheologică a Dobrogei de Nord-Vest. Studii şi Cercetări de Istorie Veche. 4 (3-4), pp. 749-750.

Damian O., Andonie C., Vasile M., 2003. Cetatea bizantină de la Nufăru. Despre problemele unui sit arheologic suprapus de o aşezare contemporană. Peuce, S.N. 1, pp. 237-266.

Dănescu G., 1896. Dictionarul geografic, statistic si istoric al judetului Tulcea. București.

Dimitriu R., 2012, Geodynamic and hydro-geological constraints regarding the extension of the prospective archaeo-cultural area within the northern Romanian coastal zone, Quaternary International 261, pp. 32-42.

Dumitrașcu Gh., 1996. Localități, biserici și mănăstiri românești în Dobrogea până la 1878. Constanța.

Ghiață A., 1978. Contribuții noi privind unele aspecte ale societății românești din Dobrogea în secolele XV-XIX. Analele Academiei. Memoriile Sectiunii de Stiinte Istorice. IV, 1, 1975-1976, pp. 71-106.

Ghiață A., 1982. Toponimie și geografie istorică în Dobrogea medievală și modernă. Memoriile secției de Științe Istorice. IV, 5, 1980, pp. 29-61.

Hașotti P., 1997. Epoca neolitică în Dobrogea. Constanța.

Ionescu M.D., 1904. Dobrogea în pragul veacului al XX-lea. Bucuresti.

Mănucu-Adameşteanu M., 1992. Orgamé Polis. Pontica. 25, pp. 55-68.

Micu C., Carozza L., Carozza J.-M., Mihail F., Jugănaru G., Observations sur l'habitat néo-énéolithique dans le Delta du Danube, in: In medias res praehistoriae. Miscellanea in honorem annos LXV peragentis Professoris Dan Monah oblata, Editura Universităţii « A.I. Cuza » Iaşi, Iaşi, 2009, pp. 317-337.

Morintz S., 1964. Quelques problémes concernant la période du Hallstatt du Bas Danube a la lumiére des fouilles de Babadag. Dacia, N.S. 8, pp. 101-118.

Morintz S., 1978, Contribuţii arheologice la istoria tracilor timpurii. Bucharest, Ed. Academiei.

Motzoi-Chicideanu I., 2011. Obiceiuri funerare în epoca bronzului la Dunărea Mijlocie şi Inferioară. Bucharest, Ed. Academiei.

Opaiț A., 1977. Aegysus 1976 – raport preliminar. Pontica. 10, pp. 307-311.

Păunescu A., 1999. Paleoliticul şi mezoliticul de pe teritoriul Dobrogei. vol. II, Bucharest, Ed. Satya Sai.

Polonic P., 1935. Cetăţile antice de pe malul drept al Dunării (Dobrogea) până la gurile ei. Natura. XXIV (7), pp.18-26.

Simion G.,1971. Descoperiri arheologice pe grindurile din Delta Dunării. Peuce. 2, pp. 47-61.

Simion G., 1977. Cetatea geto-dacică de la Beştepe (comuna Mahmudia-Tulcea). Peuce. 6, pp. 31-47.

Stănică A. 2015. Viaţa economică din nordul Dobrogei în secolele X-XIV. Constanţa, Ed. Dobrogea.

Suceveanu A., 1977. Viaţa economică în Dobrogea romana. Secolele I-III. Bucharest, Ed. Academiei.

Suceveanu A., Barnea A., 1991. La Dobroudja romaine. Bucharest, Ed. Academiei.

Suceveanu A., Zahariade M., Topoleanu F., Poenaru-Bordea Gh. 2003 – Halmyris I. Ed. Nereamia Napocae, Cluj-Napoca.

Vasiliu I., 1995. Cercetări arheologice în Delta Dunării. Mormintele cu ocru de la Chilia Veche. Peuce. 11, pp. 49-88.

Vespremeanu-Stroe A., Preoteasa L., Hanganu D., Brown A.G., Bîrzescu I., Toms P., Timar-Gabor A., 2013. The impact of the Late Holocene coastal changes on the rise and decay of the ancient city of Histria (southern Danube Delta). Quaternary International. 293, pp. 245-256. s

Received 7 March 2017
Revised 12 April 2017