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PRELIMINARY ARCHAEOZOOLOGICAL DATA ON THE NEOLITHIC SETTLEMENT IN GĂLĂŢUI-MOVILA BERZEI

Abstract: Satul Gălăţui, situat pe malul lacului cu acelaţi nume aparţine comunei Alexandru Odobescu (judeţul Călăraşi). Săpăturile arheologice care au furnizat materialul arheozoologic analizat de către noi s-au derulat în punctul "Movila Berzei", în anii 2008 şi 2009. Lotul faunistic studiat cumulează 348 resturi faunistice şi provine din stratul de cultură Boian, cu două orizonturi de locuire: Boian – Giuleşti III / 1 şi III / 2, datate în mileniile VI - V î. Hr. Din primul orizont de locuire au fost recuperate 94 de resturi osoase, aproape integral provenite de la specii domestice. Calul, prezent în ambele nivele de locuire prin câte un dinte izolat, îl vom considera fiind încă, în aceeastă perioadă istorică, în stare sălbatică. Dacă excludem dintele de cal şi două resturi de valve aparţinând genului *Unio*, toate celelalte fragmente osoase din acest prim nivel aparţin speciilor domestice, după cum urmează, după numărul de fragmente (NR), 83,75 % bovine, 11,25 % ovicaprine, 2,5 % porcine şi 1,25 % câine, iar după numărul minim de indivizi (MNI), 54,54 % bovine, 18,18 % ovicaprine, iar la egalitate, cu 9,1 %, porcul şi câinele. Pe baza unui metacarp de oaie descoperit întreg se estimează o talie de 621,03 mm. Lotul faunistic descoperit în cel de-al doilea orizont de locuire este mai numeros şi diversitatea speciilor mai mare. Prin urmare raportul mamifere domestice / sălbatice, creşte mult în favoarea speciilor sălbatice faţă de nivelul anterior. Procentajul acestora din urmă, aproape nul în primul nivel (un singur fragment de cal), se ridică în nivelul superior la 4,1 %. Diferenţa trebuie privită cu prudenţă datorită cantităţii reduse de material osos. Frecvenţa speciilor în cel de-al doilea nivel este, după numărul de resturi, pentru bovine domestice 74,87 %, ovicaprine 17,94 %, suine domestice şi câine 1,53 %. Procentajul speciilor sălbatice este 1,02 % pentru cerb, bour, vulpe şi 0,53 % pentru mistreţ şi cal. S-a estimat pentru un taur o talie de 1329,3 mm, pe baza unui metacarp întreg, iar pentru o femelă o talie de 1251,3 mm, după un metatars complet. În secţiunea XVI, caroul 7 - 8, adâncimea 2 – 2.10 m a fost descoperită o locuinţă neolitică în inventarul căreia erau şi 7 resturi osoase, dintre care 4 au fost determinate ca aparţinând speciei *Bos taurus*. O privire comparativă – Bolintineanu – Boian-Giuleşti – asupra aşezării de la Gălăţui, bazată pe criterii arheozoologice relevă asemănări, dar şi deosebiri între cele două comunităţi. Observăm că au fost identificate aproximativ aceleaşi specii sălbatice (un spectru faunistic redus), mistreţul este absent în stratul Bolintineanu şi reprezentat printr-un singur fragment în materialul Boian-Giuleşti. Raportul mamifere domestice / sălbatice este foarte apropiat în cele două culturi: 96,77 / 3,23 % în Boian-Giuleşti şi 97,2 / 2,8 % în Bolintineanu, remarcăm în ambele cazuri frecvenţa ridicată a mamiferelor domestice. Ponderea speciilor este foarte asemănătoare în cele două niveluri de locuire. Analogii ale sitului Boian-Giuleşti de la Gălăţui cu alte aşezări contemporane relevă, în primul rând, o diversitate redusă de specii la Gălăţui, la fel ca şi la Bogata şi

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Bucşani, în opoziţie cu Silištea, Ciulniţa, Isaccea, Lăceni, aşezări cu un spectru faunistic mai bogat. În ceea ce priveşte ponderea speciilor, situl de la Gălăţui se apropie cel mai mult de cel de la Ciulniţa şi într-o oarecare măsură de cel de la Bogata, unde rolul principal în cadrul creşterii animalelor îl deţineau bovinele domestice, toate celelalte aşezări Boian-Giuleşti studiate având o economie animalieră bazată şi pe exploatarea sau vânarea altor specii.
Keywords: archaeozoology, fauna, bones, Gălăţui, Neolithic, Boian – Giuleşti.

The village of Gălăţui, located on the shores of the lake bearing the same name, is administratively part of the larger settlement of Alexandru Odobescu (Călăraşi County). The archaeological excavations that have revealed the archaeozoological material under analysis were performed between 2008 and 2009 on the spot called "Movila Berzei" (The Stork's Mound). The animal remains analyzed here include 348 items (table 1; fig. 1) and belong to the Boian culture stratum, with two habitation levels: Boian – Giuleşti III / 1 and III / 2, dated to the 6^{th}-5^{th} millennium B.C. (Neagu 2010, p. 539).

1. Description of species according to habitation levels

Habitation level I – Boian – Giuleşti III / 1

94 bone fragments, almost all belonging to domestic species, have been recovered from the first habitation level. Two isolated horse teeth have been discovered, one in each habitation level, but during that period horses were not domesticated but wild. Excluding thus the horse tooth and two valve remains belonging to the *Unio* genus, all other bone fragments from this first level belong to the following domestic species (percentages given according to the number of preserved remains noted NR): cattle 83.75 %, caprovines 11.25 %, pigs 2.5 %, and dogs 1.25 %. According to the minimum number of individuals (MNI) the proportion of the species was 54.54 % cattle, 18.18 % caprovines, 9.1 % pigs, and 9.1 % dogs.

Bos taurus (domestic cattle) were the most numerous and almost all skeleton elements were found in relatively equal proportions. The discovery of mandible remains allowed us to estimate the minimum number of individuals (besides a calcaneus with a partially ossified tuberosity) and the age when cattle were slaughtered. Thus, the estimated 6 individuals might have had the following ages when they were killed: 8-13 months; ca. 18 months; ca. 24 months; 30-31 months, ca. 42 months, and over 48 months. On the basis of an entirely preserved metatarsus we were also able to estimate the height at shoulders and the gender of one individual. The female (Udrescu – Bejenaru – Hrişcu 1999, p.79) measured ca. 1180.08 mm (Driesch – Boessneck 1974, p. 336). One right cattle mandible showed brown and black stains interpreted as traces of firing.

Ovis aries / Capra hircus (caprovines) are only represented in the first habitation layer by 9 bone remains belonging to two individuals, one under 2 and the other over 3 years of age. On the basis of a sheep metacarpus that was discovered in its entirety one can estimate an individual measuring ca. 621.03 mm

(Driesch – Boessneck 1974, p. 339). Traces of fine transversal cuts are visible on the surface of its skull, at the distal end of the diaphysis, over ca. 7 mm; the proximal half of the cranial face was also polished over ca. 22 mm.

Sus scrofa domesticus (domestic pig) is very poorly represented, by only two fragments probably belonging to a single individual of ca. 16-17 months.

One fragment belongs to ***Canis familiaris*** (dog) and another to ***Equus caballus*** (horse).

Habitation level II – Boian – Giuleşti III / 2

The faunistic lot discovered in the second habitation level is more numerous and the diversity of its species is larger. The proportion between domestic and wild animals is thus more in favor of the latter than in the previous level. The percentage of wild species, almost lacking from the first level (a single horse bone fragment) now reaches 4.1 %. The difference must be regarded with caution due to the reduced quantity of bone material.

146 remains belong to **domestic cattle,** i.e. a minimum number of 5 individuals (estimated according to teeth and the ossification degree of the vertebral body), slaughtered at 18-24 months, 24-30 months, ca. 36 months, ca. 40 months, and ca. 7-9 years old.

The four identified horn fragments are splinters, two from the base of horns and two from the central part; they cannot give any indication on the morphological characteristics of the cattle they belonged to.

One bull has been estimated as measuring 1329.3 mm in height on the basis of a completely preserved metatarsus. This fragment and other 3 primary phalanges show traces of firing. One phalanx presents black firing stains and there are traces of human intervention on the skull surface, at its distal end, under the shape of a fragment cut-out with a sharp instrument. Two other primary phalanges show similar traces. One has black firing traces and indications of intentional cutting, while another is burnt to black on the dorsal side. Another distal metatarsus fragment is completely and uniformly burnt to dark brown.

Caprovines cumulate 35 fragments, among which two probably belong to the *Capra hircus* species, while 17 remains seem to belong to the *Ovis aries* species. The other 15 fragments could not be identified more precisely. One incomplete goat horn (with a broken tip) corresponds to the "sword" type and probably belonged to a male animal. One broken distal metatarsus was attributed to a male ovine.

Table 1. Species frequency (%) in the Neolithic settlement of Gălăţui

	Boian - Giuleşti Culture phase III / 1				Boian - Giuleşti Culture phase III / 2				Neolithic dwelling Phase III / 1				TOTAL			
	NR	**%**	**MNI**	**%**	**NR**	**%**	**MNI**	**%**	**NR**	**%**	**MNI**	**%**	**NR**	**%**	**MNI**	**%**
Bos taurus	67	83.75	6	54.54	146	74.87	5	29.41	4	100	1	100	217	77.77	12	41.37
Ovis aries / Capra hircus	9	11.25	2	18.18	35	17.94	5	29.41					44	15.77	7	24.13
Sus scrofa domesticus	2	2.5	1	9.1	3	1.53	1	5.88					5	1.79	2	6.89
Canis familiaris	1	1.25	1	9.1	3	1.53	1	5.88					4	1.43	2	6.89
Total domestic mammal remains	79	98.75	10	90.9	187	95.9	12	70.6	4	100	1	100	270	96.8	23	79.3
Cervus elaphus					2	1.02	1	5.88					2	0.71	1	3.44
Bos primigenius					2	1.02	1	5.88					2	0.71	1	3.44
Vulpes vulpes					2	1.02	1	5.88					2	0.71	1	3.44
Sus scrofa ferus					1	0.51	1	5.88					1	0.35	1	3.44
Equus cf. caballus	1	1.25	1	9.1	1	0.51	1	5.88					2	0.71	2	6.89
Total wild mammal remains					8	4.1	5	29.4					9	3.2	6	20.7
Total mammal remains	80	100	11	100	195	100	17	100	4	100	1	100	279	100	29	100
Ribs	12				47								59			
Unio sp.	2				8								10			
TOTAL	**94**				**250**								**348**			

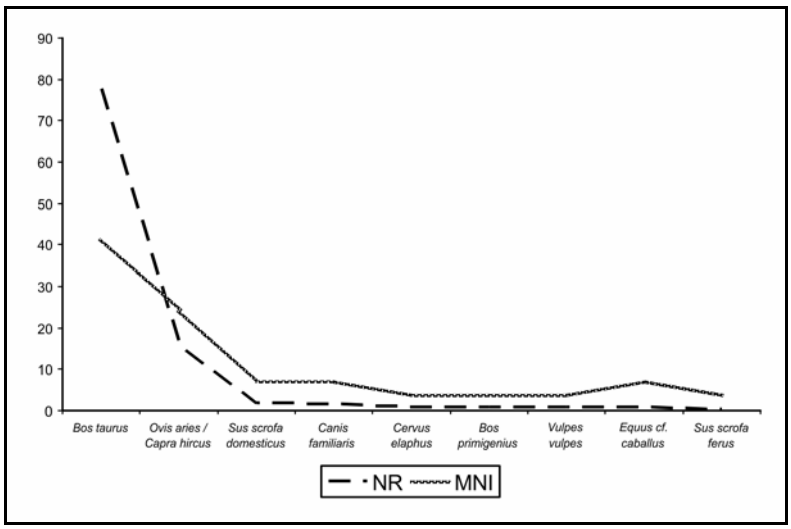

Fig. 1. Percental distribution of mammal remains in the settlement of Gălăţui.

The ages when the 5 caprovines (including the male goat discussed above) were killed were: 12-18 months, 26-28 months and 3 at adult age, one older than 5 (with vertebras that had ossified bodies).

Connected bone fragments from a female sheep (the individual over 5 years of age) were discovered in section XX, square 2, at a depth of 0.25-0.30 m. The following fragments have been identified: one skull fragment from the occipital area, one atlas, one axis, 5 cervical vertebrae, 2 thoracic vertebrae and probably two other thoracic vertebrae discovered in the same area but at a deeper level (all vertebrae were fragmentary). We attribute two entire mandibles to the same complex, confirming the fact that these bones belonged to an adult animal. On the basis of the axis we believe this individual was female.

Domestic pigs are just as poorly represented as in the first habitation level, by only 3 remains belonging to one male animal; one cannot identify the age of this individual.

Two mandibles and one vertebra, all in fragments, probably belonged to a single **dog.**

The following wild mammals have been identified: **red deer** (2 fragments, 1 individual under 3.5 years old), **aurochs** (2 fragments, 1 individual older than 18 months, possibly a female due to its relatively small size), **fox** (2 remains, 1 individual), and **wild pig** (1 remain, 1 individual, possibly female as well). One of the two bone remains attributed to the **fox** has been identified as pertaining to the parietal area, with the sagittal crest, while the other was a fragment with occipital condyles, the tympanic bulla, and a fragment from the sphenoid. The presence of **horses** is indicated here by a single isolated tooth remain as well. One of the unidentified fragments shows traces of firing. 8 valves belong to *Unio genus* **mollusk**. Fragmentary ribs discovered in both the first and the second layers were not included in the statistic calculation.

Neolithic dwelling - level I – Boian – Giuleşti III / 1

A Neolithic dwelling was uncovered in section XVI, squares 7-8, at a depth of 2 – 2.10 m. Its inventory included 7 bone fragments among which 4 have been identified as belonging to *Bos taurus* species: one fragment of a femoral head with black firing stains, one proximal fragment from a metatarsus, one entire secondary phalanx, and one vertebral fragment with ossified head; 3 fragments remained unidentified.

2. Animal husbandry and analogies

When looking at the percental distribution of mammal remains and individuals in the two habitation layers of the Boian – Giuleşti Culture, III / 1 and III / 2 (table 1; fig. 2, 3), one notes a larger diversity in phase III / 2; almost all wild mammal remains have been discovered in this horizon and over 70 % of the entire faunistic material.

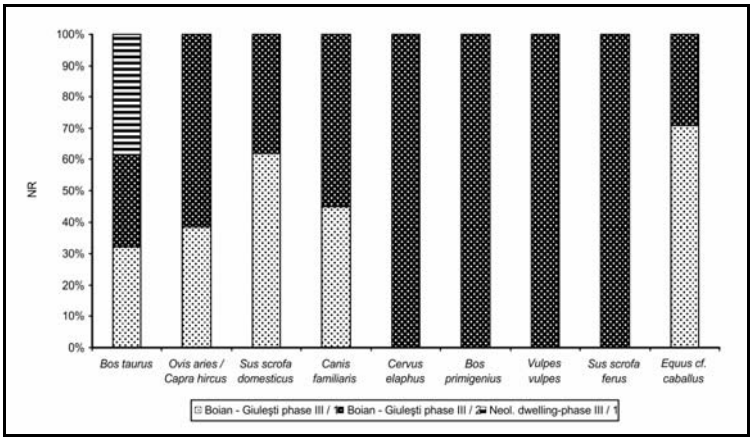

Fig. 2. Distribution of mammal remains in the settlement of Gălăţui according to phases.

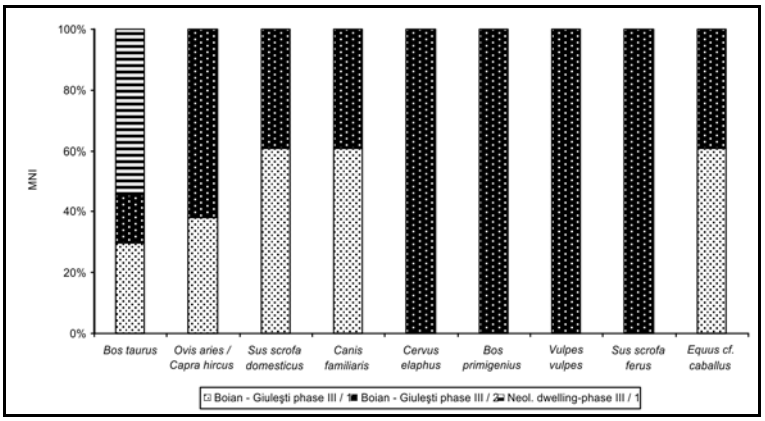

Fig. 3. Distribution of mammal individuals in the settlement of Gălăţui according to phases.

A comparative overview – Bolintineanu (Bălăşescu – Radu 2003, p. 73-84) – Boian-Giuleşti – of the settlement in Gălăţui based on archaeozoological criteria (fig. 4) reveals common but also diverging elements between the two communities.

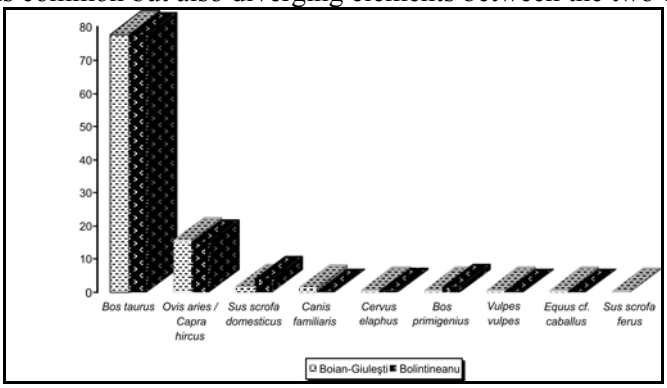

Fig. 4. Species frequency in Gălăţui – comparison with Bolintineanu and Boian-Giuleşti.

One notes that almost the same wild species have been identified (a low faunistic spectrum); wild pigs are absent from the Bolintineanu layer, while a single fragment has been discovered among the Boian-Giuleşti material. The proportion between domestic and wild mammals is very similar in the two cultures: 96.77 / 3.23 % in Boian-Giuleşti and 97.2 / 2.8 % in Bolintineanu; one notes the high frequency of domestic mammals in both cases.

The proportion of species is very similar in the two habitation layers, Bolintineanu and Boian-Giuleşti (fig. 4). Domestic cattle show the same percentage (77.7 %) while caprovines have very similar frequencies (15.2 % and 15.77 %). There are small differences in the case of domestic pigs and aurochs, species that are slightly better represented in the Bolintineanu material; only isolated fragments from wild pigs have been discovered in the Boian-Giuleşti culture and none in the Bolintineanu layer.

As for the age when cattle were slaughtered, one notes differences between the Bolintineanu and Boian-Giuleşti communities: in the first, cattle were mostly killed at adult age, while in the latter it seems that juvenile and sub-adult individuals were preferred. Mostly adult caprovines were killed in both communities.

The cattle raised by Boian-Giuleşti populations were of very similar size; the average height at shoulder was of 125.35 cm. at Gălăţui and 125.9 at Ciulniţa (Bălăşescu – Radu 2004, p. 147). Comparable figures were also obtained for the size of cattle in Vidra phase from Vărăşti, where a metacarpus bone belonging to a female animal indicated a height of 123.6 cm (Bolomey 1966, p. 29) and at Vlădiceasca, where an average of 125.1 cm was calculated (Bălăşescu – Radu 2004, p. 148). In Căscioarele, Spanţov phase, the estimated height of a female was of 114.6 cm (Bolomey 1981, p. 176), comparatively smaller than the one calculated for the female animal in Gălăţui, i.e. of 118 cm.

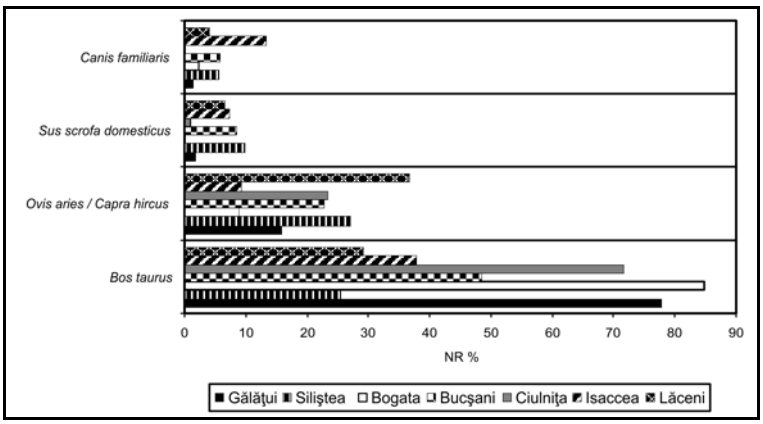

Fig. 5. Frequency of domestic mammals on Boian-Giuleşti sites.

The height of sheep in Gălăţui, of 62.7 cm, is bigger than that of sheep in Ciulniţa (Boian-Giuleşti), of 58.2 cm, Vlădiceasca (Boian-Vidra), of 55.4 cm and Căscioarele (Boian-Spanţov), of 54.3 cm, and very close to that estimated for ovines in Lăceni-Măgura (Boian-Giuleşti), of 62.7 cm (Bălăşescu – Radu 2004, p. 137).

Metric data (Driesch 1976) on faunistic remains is shown in annex 1.

The analysis of analogies for the Boian-Giuleşti site in Gălăţui, i.e. other contemporary settlements (Bălăşescu – Radu 2004, p. 75-83), reveals, first of all, a small diversity of species in Gălăţui, just as in Bogata and Bucşani, unlike in Siliştea, Ciulniţa, Isaccea, and Lăceni that showed a wider spectrum of fauna (fig. 5, 6).

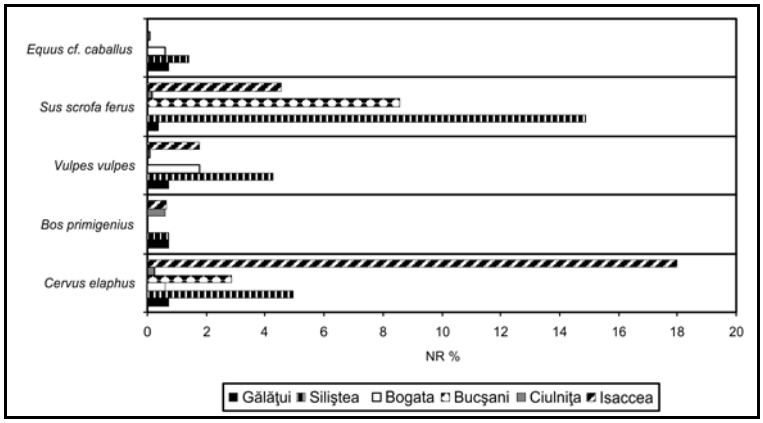

Fig. 6. Frequency of wild mammals on Boian-Giuleşti sites.

As for the proportion of species, the site in Gălăţui resembles mostly that in Ciulniţa, but also that in Bogata where domestic cattle held the main role in animal husbandry; all other analyzed Boian-Giuleşti settlements were based on raising, exploiting, or hunting other species.

REFERENCES

Bălăşescu – Radu 2003: A. Bălăşescu, V. Radu, *Paleoeconomia animalieră a comunităţilor Bolintineanu,* in M. Neagu, *Neoliticul mijlociu la Dunărea de Jos cu privire specială asupra centrului Munteniei*, Călăraşi, p. 73-87.

Bălăşescu – Radu 2004: A. Bălăşescu, V. Radu, *Omul şi animalele. Strategii şi resurse la comunităţile Hamangia şi Boian*, Târgovişte.

Bolomey 1966: Alexandra Bolomey, *Fauna neolitică din aşezarea Boian A de la Vărăşti*, in Studii şi cercetări de antropologie, 3, 1, p. 27-34.

Bolomey 1981: Alexandra Bolomey, *Contribuţie la cunoaşterea economiei animale a culturii Boian în lumina materialelor de la Căscioarele, jud. Călăraşi*, in Cercetări arheologice, 5, p. 169-193.

Comşa 1974: *History Communities Boian Culture*, Bucharest, p. 13-14.

Driesch – Boessneck 1974: Angela von den Driesch, J. Boessneck, *Kritische Anmerkungen zur Widerristhöhenberechnung aus Längenmaßen vor- und frühgeschichtlicher Tierknochen*, in *BLV-Verlagsgesellschaft München*, 40, 22, 4, p. 325-348.

Driesch 1976: Angela von den Driesch, *A Guide for the Measurements of Animal Bones from Archaeological sites*, in *Peabody Museum Bulletin*, 1, Harvard University, p. 1-137.

Neagu 1999: *Gălăţui-Movila Berzei* in *Boian Civilization in Romania*, Călăraşi, p. 22.

Neagu 2000: *Boian-Giuleşti Communities in the Danube Valley*, Istros X, Brăila, p.30.

Neagu 2003: *Middle Neolithic Age in the Lower Danube Region wits special Consideration on the Center of Muntenia*, Călăraşi, 2003, p. 92.

Neagu 2010: M. Neagu, *The Neolithic settlement from Gălăţui „Movila Berzei”,* in *Tracii şi vecinii lor în Antichitate*, p. 539-541.

Udrescu – Bejenaru – Hrişcu 1999: M. Şt. Udrescu, Luminiţa Bejenaru, Carmen Hrişcu, *Introducere în arheozoologie,* Iaşi.

Annex 1

Metric data (mm) of fauna remains in the settlement at Gălăţui

Bos taurus

Maxilla								
L M^1-M^3	92							
Mandible								
L dp_2-dp_4	58.2							
L dp_4	30							
$HmfM_1$	41							
$Hmfdp_2$	27							
L M_3		41.1	45.5		40.2			
$HmbM_3$			80.5					
L P_2-P_4				60		50		
Axis								
B dens	45*	85.7						
BPacr		45.4						
Scapula								
SLC	38.8							
Radius								
Bp	81							
BFp	73.6	77.7						
APD p	41	40						
BFd	92.6							
DAP d	46							
Ulna								
BPC	53.7	41.4						
SDO		66	50.5					
Metacarpus								
GL	210							
Bp	64	58	62.5	59				
APD p	43	35.7	36.5	36.6				
SD	39.4						33.3	27.7*
APD df	26						31	
Bd	73				62	60	60.7	
APD p	35.5				34	30		
Ip=Bpx100/GL	30.47							
Idf= SDx100/GL	18.76							
Id=Bdx100/GL	34.76							
Sex	Male							
Size	1329.3							
Pelvis								
LA	63.7							
Femur								
DC	45.6							

Patella												
GL	58.3											
GB		54										
APD		36										
Tibia												
Bd	70.4	78.6	63.2	63.1								
BFd	52	57	45	46	45.5							
APD d	52.5	56.7	48.2	46.6	45.4							
Astragalus												
GLl	68.5	76.6	73	67								
GLm	64.7	69.8	68.3	37	68.5							
Dl	40	44	42.3	62.3								
Dm	35.4	38.2	37.6	32	38.3							
Bd	44	51	48.5	43.4	47							
Calcaneus												
GL			123.5									
GB	50*	48	48									
Centrotarsale												
GB	63.4	58	58.2	64								
APD	61.3	54.6	57.3	60								
Metatars												
GL	223.5	237										
Bp	44.8			40.8	48		50	45.5				
APD p	44.2	48*		43.3	47.3	46.8	51.6	43				
SD	25.2	26.9										
APD df	26.2	29.2										
Bd	53.8	56.7							57.3	50	56.6	44.6
APD d	30.2	33							33.3	30.7	31	
Ip=Bpx100/GL	20.04											
Idf= SDx100/GL	11.27	11.35										
Id=Bdx100/GL	24.04	23.92										
Sex	Female	Male										
Size	1180.08	1251.36										
Phalanx I												
GL	63			67*		71.2	62.4	65.4	63.3	63.6	65.8	65*
Bp	25.2		28*			32.4	27.6	29.5	31.7	29.7	28.6	
SD	22.2	32	22.8		23.2	26.1	23.5	26	27.5	26	23.8	32.8
Bd	24.6	33		30.8		33.1	25	29.2	28.3	25	27	34.4
Phalanx II												
GL	41.8	47.2	42.5	43.7	44	41.7						
Bp	29.5	34.6	30.2	28.4	29.7	28						
SD	23.3	29.1	24.7	23	29	23.3	26.9					
Bd	26.4	29.5	25.6	23.6	24.6	26.4	29.1					

Phalanx III								
DLS	51							
MBS	22.3							
Ld	67							
LF	30.7							
BF	21.8							
Cervical vertebrae								
BPacr	73.8	66.9	53					
BPacd	72.5	70						
BFcr			39.2					
HFcr			38.8					
GLPa	74.2							
Thoracic vertebrae								
BPacd	62.3							
Lumbar vertebrae								
BPacr	51*	48.5						
BPacd	33.2*							

Ovis aries / Capra hircus

Cranium								
GBoc	50.7							
GBfm	20							
Hfm	18.3							
Horncore								
LDb	35.8[C]							
SDb	22.5							
Cb	100							
Sex								
Mandible								
L dp_2-dp_4						32.5		
L dp_4						17.7		
L P_2-M_3	76.4	77.6	76[C]	83	80			
L P_2-P_4	23	25	24.6	27	26			
L M_1-M_3	54	52.7	50.6	53.4	53			
L M_3	25.7	23.6	24	19	25.5			
Hrv	79							
$HmfP_2$	19.6	19	17.5					
$HmfM_1$	24.3	24.5	21.6					
$HmbM_3$	42.7	44						
Bc							26.2	21.5
$LgcM_3$	60							
$LgcP_2$	135							
Lgcfm	155							
Atlas								
GL	59.5							
BFcr	50							
BFcd	54.3							

Axis					
LCDe	63.5				
LAPa	51.8				
BFcr	49.1				
BFcd	24				
HFcd	19.2				
SBV	27				
B dens	23.4				
H	52				
Scapula					
GLP	27.7				
LG	23.3				
BG	19.2				
SLC	19.5				
Humerus					
SD	12.8				
APD df	13.6				
Radius					
Bp			26.8	30	
BFp			24.5	29.5	
APD p			13.8	15.4	
SD	14.8		16.1		20.7
APD df	7.8		9		11.3
Bd		28*			
APD d		17.7			
Metacarpus					
GL	127				
Bp	23.9				
APD p	18				
SD	14.4				
APD df	10.4				
Bd	26.6				
APD d	17.2	15.5			
Ip=Bpx100/GL	18.81				
Idf= SDx100/GL	11.33				
Id=Bdx100/GL	20.94				
Size	621.03				
Tibia					
SD	15.3				
APD df	12				
Bd	24.5	23.6			
BFd	19	16			
APD d	19.3	18.5			
Metatarsus					
Bp	22				
APD p	21.8				
SD	13.2				
APD df	11.7				

Phalanx I					
GL	40.6				
Bp	14.5				
SD	10.4				
Bd	11.7				
Phalanx III					
LF	31*				
Cervical vertebrae					
PL	39	27.4	45.3	48.7	51.1
BFcr	18	18.4	19	22.6	20.7
HFcr	19.6	19	16.8	16.7	17.2
BFcd	23.4	30.3	24.7	24	21.1
HFcd	19.2	17.5	21.8	21	20.1
BPacr	44*				38
BPacd	45.7	45	43.7	41.2	36.2
Thoracic vertebrae					
PL	24.4	24.7	25.8	27	
BFcr	22.3	22.3	20.6		
HFcr	18.3	18	16.2		
BFcd	20.8	27.2	22.3	21.8	
HFcd	15.6	17.2	17	17.2	
Lumbar vertebrae					
BPacr	26*				
BPacd	21.2				
GLPa	38.2				

Sus scrofa domesticus

Mandible	
Lsy	82.5
L Calv	11.6
Sex	Male
Humerus	
Bd	36.6
BT	37.5
APD d	38.2
Radius	
SD	22.5*

Canis familiaris

Mandibula			
LM_1-M_3		32.6	
L M_1	21.2	20	
B M_1	8	7.7	
$HmbM_3$		21.8	20.6
Bc			18.6
Cervical vertebrae	
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BPacr	42.5
BPacd	29.2

Cervus elaphus

Scapula	
LG	48.5
BG	46.3
SLC	39
Radius	
Bd	60.7
BFd	51
APD d	42.5

Bos primigenius

Scapula	
GLP	97.7
LG	73*
BG	69
SLC	80.3
Radius	
Bp	103
BFp	91
APD p	49.2

Sus scrofa ferus

Scapula	
BG	31.4
SLC	32.3

Vulpes vulpes

Cranium	
Gbab	23.6
GBoc	28.1
GBfm	15.8

* – approximate metric values

[c] - Capra

Explanation of codes (Driesch 1976)**:** APD – Antero-posterior diameter; APD d – Antero-posterior diameter of the distal end; APD df – Antero-posterior diameter of the diaphysis; APD p – Antero-posterior diameter of the proximal end; B M_1 - Breadth of the lower 1st molar; B dens – Breadth of the dens; BA – Breadth of the acetabulum; Bc – Breadth of the condyle process; Bd – Breadth of the distal end; BF – Breadth of the Facies articularis; BFcr – Breadth of the Facies articularis cranialis; BFcd – Breadth of the Facies articularis caudalis; BFd – Breadth of the Facies articularis distalis; BFp – Breadth of the Facies articularis proximalis; Bp – Breadth of the proximal end; BPacr – Breadth across the Processus articulares craniales; BPacd – Breadth across the Processus articulares caudales; BPC – Breadth across the coronoid process; BT – Breadth of the trochlea; Cb – circumference of the base; DC – Depth of the Caput femoris; Dl – Depth of the lateral half; DLS – Length of the sole; Dm – Depth of the medial half; DPA – Depth across the Processus anconaeus; GB – Greatest breadth; GBoc – Greatest breadth of the occipital condyles; GBfm - Greatest breadth of the foramen magnum; Gdab – Greatest diameter of the auditory bulla; GL – Greatest length; GLl – Greatest length of the lateral half; GLm - Greatest length of the medial half; GLPa – Greatest length from the Processus articulares craniales to the Processus articulares caudales; H – Height; Hfm - Height of the foramen magnum; $HmbM_3$ – Height of the mandible behind 3rd molar; $Hmfdp_2$ – Height of the mandible in front of deciduous 2nd lower premolar; $HmfM_1$ – Height of the mandible in front of first molar; Hrv – Height of the vertical ramus; L C - Length of the canine; L Calv – Length of the canine alveolus; L dp^4 – Length of the deciduous 4th upper premolar; L dp_4 – Length of the deciduous 4th lower premolar; L dp_1-dp_4 – Length of the lower deciduous premolar row; L dp_2-dp_4 – Length of the lower deciduous (2nd-4th) premolar row; L M^1-M^3 – Length of the upper molar row; L M_1 – Length of the lower 1st molar; L M^3 – Length of the upper 3rd molar; L P_1-P_4 – Length of the lower premolar row; L P_2-P_4 – Length of the lower (2nd-4th) premolar row; L P_2-M_3 – Length of the lower cheekrow; L M_1-M_3 – Length of the lower molar row; L M_3 – Length of the lower 3rd molar; LA – Length of the acetabulum; LAPa - Length of the arch including the Processus articulares caudales; LCDe – Length in the region of the corpus including the dens; Ld – Length of the dorsal surface; LDb – Large diameter of the base; LF – Length of the Facies articularis; LG – Length of the glenoid cavity; $LgcM_3$ – Length: gonion caudale – M_3; $LgcP_2$ – Length: gonion caudale – P_2; Lgcfm – Length: gonion caudale – mental foramen; LO – Length of the olecranon; Lsy – Length of the symphysis; MBS – Middle breadth of the sole; PL – Physiological length of the bodies; SBV – Smallest breadth of the vertebra; SD – Smallest breadth; SB – Smallest breadth of the shaft of ilium; SDb – Small diameter of the base; SDO – Smallest depth of the olecranon; SH - smallest height of the shaft of ilium; SLC – Smallest length of the Collum scapulae.