SOME DATA ON LIVESTOCK AND HUNTING IN THE BRONZE AGE SETTLEMENT (COSTIŞA CULTURE) AT COSTIŞA (NEAMȚ COUNTY)

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Key-words: Middle Bronze Age, Costişa culture, animal bones, processed bones, hunting.

Abstract: During 2001-2008 campaigns 71 animal bones were collected from plateau A and 91 on plateau B, in the site Costişa, belonging to the Middle Bronze Age. Unfortunately, we do not pass any information about fauna from settlements of a Costişa-type. This was a decisive reason to put into scientific circulation, such a small sample. Cattle predominate, followed by pig, caprinae, horse and dog in the first location. The game had a significant participation in the diet (Tables 1, 2). On the plateau B, one keeps the same order of species, but other frequencies (Tables 6, 8). Bone distribution according to body parts show more teeth and small elements in both locations (Tables 3, 4, 7). In case of cattle, the age profiles suggest 55.5% of specimens slaughtered for beef and 44.5% for by-products (haulage, dairy products) (Table 7). Small ruminants exploitation was mainly focused on dairy products, wool and meat subsidiary. The few metric assessments did not provide consistent data about the size and conformation of animals identified.

Cuvinte-cheie: Bronz mijlociu, cultura Costişa, oase de animale, oase prelucrate, vânătoare.

Rezumat: Prin cercetările dintre anii 2001-2008 s-au recoltat 71 de oase de animale de pe platoul A şi 91 de pe platoul B, din staţiunea Costişa (aparţinând bronzului mijlociu, cultura Costişa). Întrucât nu există, până în prezent date despre situri Costişa din regiunile noastre am considerat necesară prezentarea acestor loturi faunistice mici. Pe platoul A, predomină vitele, urmate de porc, ovicaprine, cal (5%) şi câine. Speciile vânate au o participare importantă în alimentaţie (Tabele 1, 2). Pe platoul B se păstrează aceeaşi ordine a speciilor, evident cu alte frecvenţe (Tabele 6, 8). Distribuţia oaselor pe regiuni corporale evidenţiază în ambele locaţii dentiţie şi elemente osoase mici (Tabele 3, 4, 7). În privinţa estimărilor vârstelor de tăiere, în cazul vitei se constată un procent de 55,5% sacrificări pentru carne şi 44,5% pentru produse secundare (Tabel 8). În cazul ovicaprinelor, exploatarea viza în principal lâna, lactatele şi subsidiar carnea. Puţinele dimensionări nu au oferit date substanţiale despre talia şi conformaţia corporală a animalelor identificate.

Costişa village lies towards the south-eastern limit of the Neamţ County, in Cracău-Bistriţa Depression (Moldavian Subcarpathians), medium altitudes, with terraces and alluvial plains dominate the landscape, deciduous forests, especially sessile and oak grew over them. A meadow vegetation developed along the floodplain of the Bistriţa River. Secondary meadows and farmlands replaced most of these forests, cut off over time[1]. The site is located on the eastern edge of the village Costişa; it occupies both an ellipsoidal shelf of a promontory, named "Cetăţuia" (plateau A) and the saddle that connects it to the high terrace of the Bistriţa River (plateau B). The west, south and east sides of the headland are steep and the northern slope leading down to the saddle is smoother. Archaeological research focused on examining the structure of the deposits from the Middle Bronze Age, on the plateau A, during 1959-1960, 1962 and 2001-2007' campaigns. Two contemporary communities of the Middle Bronze Age, belonging to Costişa and Monteoru cultures occupied the plateau at a time[2]. Although there are only 160 wastes, we think is necessary their publication, doubly so as there is little information about fauna from that epoch. The

[1] Collective 1982, 609-615.

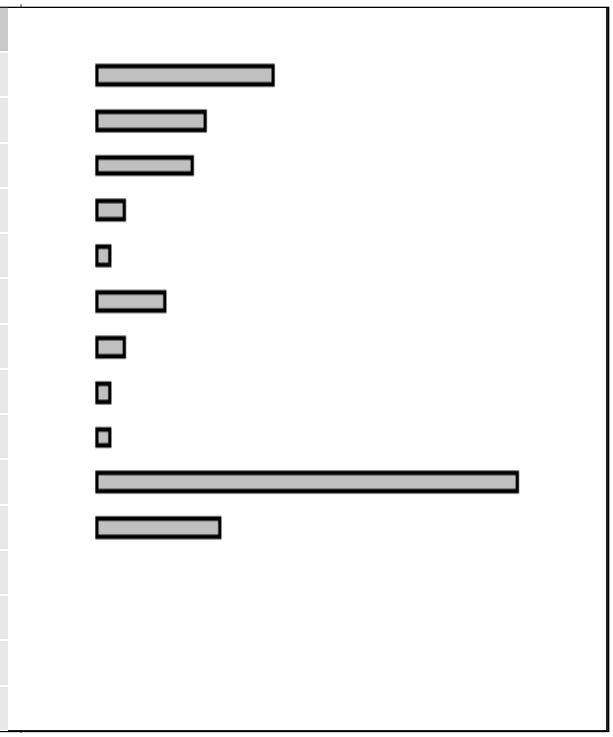
[2] Popescu 2003-2005, 319.

Costişa filler consists in agglomerations of adobe with pole prints originating in the wooden surface constructions (Table 1). Thirteen hearths, fragmentary or complete pots and animal bones also found. One suggested that the fireplaces are part of complex structures, possibly dwellings, judging by adobe agglomerations *in situ*[3]. 78 remnants of which 40 bones were accurately determined, have been brought to light on the plateau A. They belong to the six domestic species, widespread in the Bronze Age sites, namely cattle, pig, sheep, goat, horse, dog and four wild mammals: red deer, wild boar, roe deer and beaver (Tables 1, 2, Fig. 1). A rest comes from a turtle.

Most part of the bones from the 2003 campaign were collected "under the two Monteoru hearths with Costişa pottery, pieces of adobe, spread

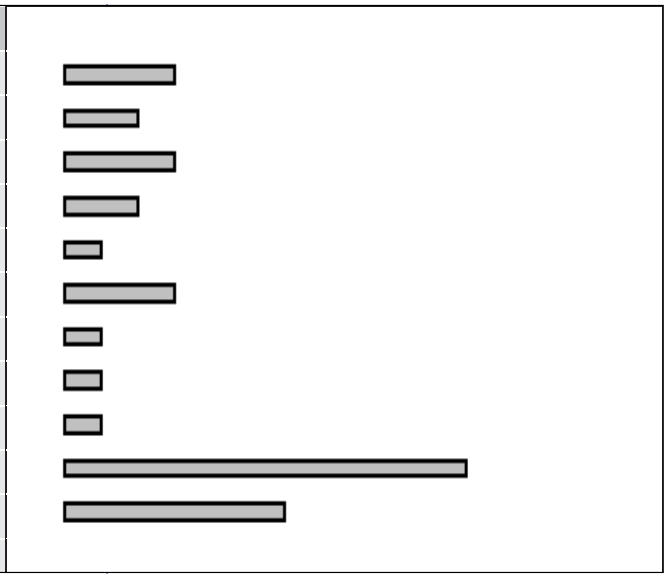
Tabel 1 – Species frequencies on the plateau A (NISP).

Taxon	NISP	%
Bos taurus	13	32.5
Sus domesticus	8	20
Ovis/Capra	7	17.5
Equus caballus	2	5
Canis familiaris	1	2.5
Cervus elaphus	5	12.5
Sus ferrus	2	5
Castor fiber	1	2.5
Capreolus c.	1	2.5
Total domestics	31	77.5
Total wilds	9	22.5
Splinters	37	
Mammals	77	
Reptiles	1	
Sample	78	



Tabel 2 – Species frequencies of sample from the plateau A (MNI).

Taxon	MNI	%
Bos taurus	3	17.65
Sus domesticus	2	11.8
Ovis/Capra	3	17.65
Equus caballus	2	11.8
Canis familiaris	1	5.88
Cervus elaphus	3	17.65
Sus ferrus	1	5.88
Castor fiber	1	5.88
Capreolus c.	1	5.88
Total domestics	11	64.7
Total wilds	6	35.3
Total	17	100



[3] Popescu, Băjenaru 2008, 5-17.

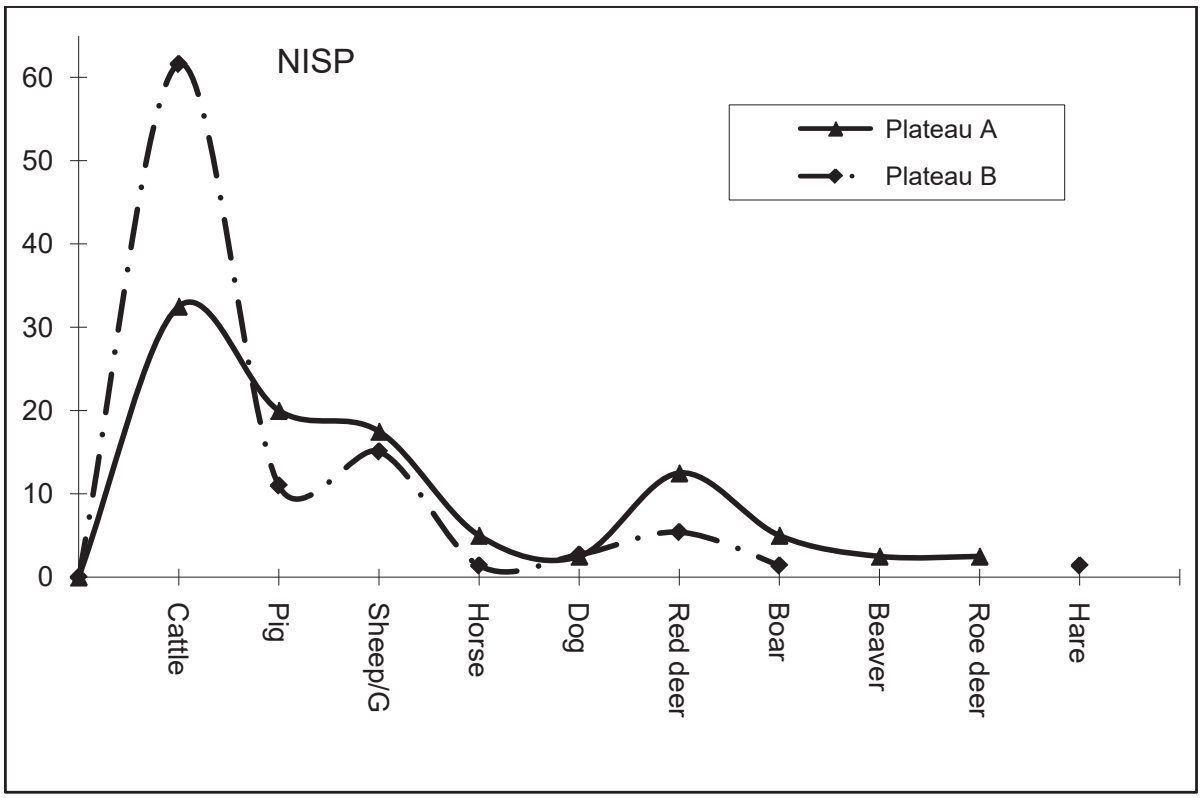


Fig. 1 – Species frequencies (as NISP) in Costişa layer.

Table 3 – Species distribution in different contexts from the plateau A.

Context	Cattle	Pig	Sheep-goat	Horse	Dog	Red deer	Roe deer	Boar	Beaver	Turtle-	Splinters	NISP
S2/C1d/2002	1											**1**
S3/C1-9a-b/ 2003/0.33-0.49 m/ beneath stone layer	5	3	5	1	1	2			1	1	14	**33**
S3/C8-9d/2003/0.55 m/beneath hearth no 5						1		2				**3**
S3/C1-8d-e/2003/ 0.31-0.56 m/beneath stone layer	1	4	2	1		2	1					**11**
S3/C1c/ 2003/0.57 m/dismantling Costişa layer	3	1									23	**27**
S2/C14f/ 2005/0.56 m/beneath stones	3											**3**
Total	**13**	**8**	**7**	**2**	**1**	**5**	**1**	**2**	**1**	**1**	**37**	**78**

Table 4 – Body parts distribution.

	Cattle	Sheep/goat	Pig	Horse	Dog	Red deer	Boar	Roe deer	Beaver	Hare	Total	%
PLATEAU A												
Head	2	3	3	1	1	2	1		1		14	35
Column	3	2	3	1							9	22.5
Upper forelimb	3		2				1				6	15
Lower forelimb	3	1				1					5	12.5
Lower hind limb	2	1				2		1			6	15
PLATEAU B												
Head	13	6	3	1	1						24	32.9
Column	3		2			1					6	8.2
Upper forelimb	8		3			1	1				13	17.8
Upper hind limb	5				1					1	7	9.6
Lower forelimb	5	2									7	9.6
Lower hind limb	8	3				2					13	17.8
Feet	3										3	4.1

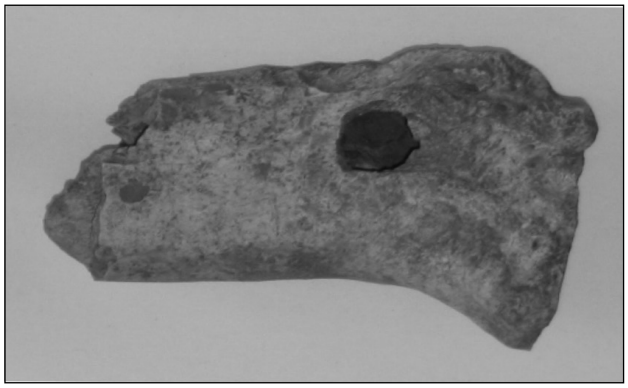


Fig. 2 – Cattle radius with perforation.

almost over the area of the trench, S2"[4]. Except for two remnants from wild boar (mandibular condyle, shoulder-blade edge) and a distal tibia from red deer under the hearth no. 5, the rest of the material comes under the stones (Table 3). About half of the sample, 37 fragments refer to indeterminate bones from small bodied-animals (sheep / pig) and a third from dentition. Distribution according body parts (skull, column, upper parts of the limbs, lower parts of the limbs, feet) engendered the succeeding results (Table 4). The elements originating in skull in all species prevail; as well, there are many isolated teeth and cracked ribs. So, the less meaty or meatless parts of the body prevail in both cases. To note that, there are no bones from feet, this raises the question whether the slaughter of animals or the butchering of carcasses was accomplished elsewhere. Probably many wastes were thrown elsewhere some of them reaching the plateau B. No pieces with gnawing or cut marks emphasized, only a few bones with burning spots. The reduced sample originates in 17 individuals, most of them young and sub-adult specimens.

Thirteen bones representing 32.5% belong to cattle. The material suggests at least one juvenile killed at 16-18 months (sometime in the summer), an adult (over 3.5-4 years) and a specimen exceeding one year. From the trench-S2/ C1d collected a complete radius, 243 mm in length, estimating a height of 104.5 cm at the withers; it is most likely a female, given the shaft index- 14.8. The bone has the distal suture just fused, so that, the individual did not reach more than 42-48 months. The piece was perforated anterior-posterior above the distal in addition, proximal edges with grinding on the front side. More than likely, the bone was not completely processed. A cattle radius with the proximal end perforated on the front unearthed in the same context (Fig. 2). Perhaps, the same item was targeted. Such skates have been identified in the Middle Bronze Age settlement at Százhalombatta-Földvár, Hungary[5]. The few metric assessments suggest low and medium specimens, not very robust. The wither height is a little higher for cattle from the Monteoru habitation, in the same area. For example, a metacarpal from a cow estimated a stature of 116.4 cm.

[4] Vulpe *et alii* 2004, 108.

[5] Choyke, Bartosiewicz 2005, 319, fig. 5.

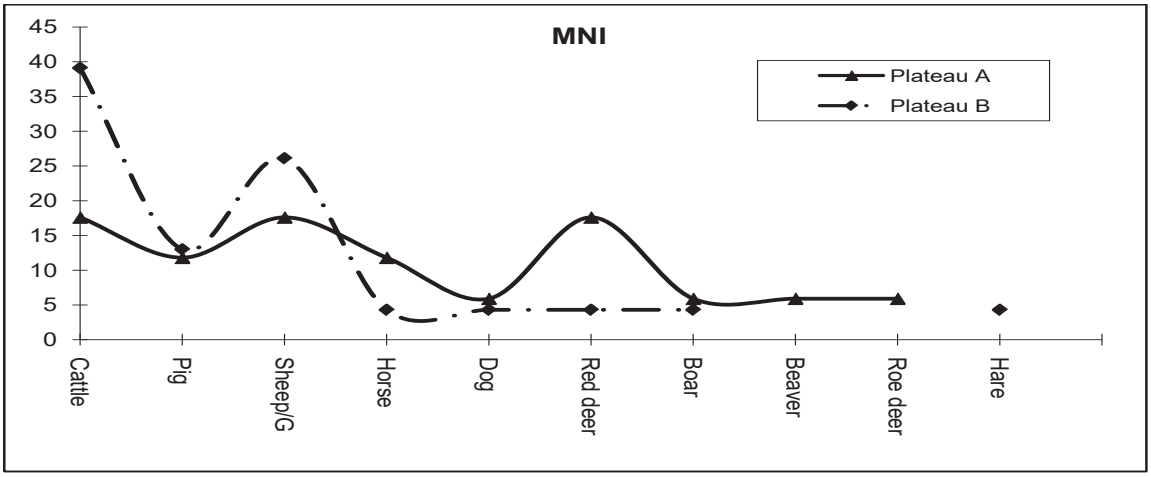


Fig. 3 – Species frequencies (as MNI) in Costişa layer.

Eight pig fragments collected below the second stones row**;** they suggest an individual slaughtered in 7 months (M1 just erupted) and another 14-16 months old (P2-4 just erupted). Seven bones come from ovicaprids**.** They belong to three specimens, slaughtered in 21 months, 4-5 years and under 24 months. From the trench- S3 / C6b / -0.46 meters collected a metapodial, turned into a pusher. A vertebra and a much worn molar come from two horses, judging from different depths where they came from. One of them is a late mature specimen. Certainly, the horsemeat seldom consumed, as with the Monteoru community. With respect to the stature of the horse from the Costişa habitation, no consistent information exists. To remember the two horses deposited in tumulus from Ripiceni (Botoşani county) (analogies with the Komarów culture)[6], with heights at the withers of 136.3 cm and 139.3 cm (K)[7]. It is likely that there were neither robust nor taller horses in our settlement. From an adult dog preserved a part of mandible with length of M1-22 mm. Of the eight bones of wild mammals, five come from red deer (12.5%), two from wild boar (5%), two from roe deer and beaver (2.5%). A distal tibia from red deer harvested under the hearth no. 5, other four bones below the second row of stones. Another distal tibia, from a quite robust red deer, with Bd/Dd – 60.5 / 43.5 mm identified. The material belongs to an immature specimen and two adults. Below the hearth V5, there are two remnants of wild boar, namely a distal scapula and mandible condyle. A proximal tibia from roe deer and a jawbone fragment from beaver belong to hunted mammals. An inset fragment of tortoise and 37 indeterminable splinters complete the sample of the level.

Researches on the plateau B emphasized the richness and complexity of Costişa structure compared to the plateau A[8]. The sample from that point is small, including 91 wastes, of which 73 are definable and 18 insignificant fragments (Fig. 3). Elements of the skull also prevail (about 33%); the proximal segments of the front limbs (fleshy part) and distal segments of rear limbs are also frequent, totaling 17.8 %. Obviously, given the reduced sample, these results do not mean too much. Of note, the important share of the jaw remainders (Table 4). The sample gathered during several campaigns, as it follows: the 2005' excavation campaign provided only eight bones, unearthed in the pit- Gr. 1; it is of round shape, 1.30 meters in diameter, containing besides animal bones, loads of adobe and pottery of Costişa type[9]. Its filler contained four bones from a sheep 3-4 years old; a talus with LL/ LM/ BD- 62.5/ 58/ 39.5 mm, a rib and a scapula assigned to a red deer. A small splinter was not specifically determined. The 2006 campaign provided thirty animal bones, spread in two trenches, S7 and S8. In interesting structure, noted by Cpl. 1/2006 identified within S7. It consists of large fragments of collapsed walls on the ground, over which several Costişa vessels were broken. The vessels were covered by pieces of clay, over them vessels of the same type were broken. Above them were settled some stones, from place to place. Its filling were containing eleven bones from one cattle (32 months old, killed probably in the autumn) and two sheep, one of which 12-16 months old (killed in the spring). A proximal metacarpus from goat, with reddish pigmentation collected nearby the hearth (V 16). In the trench-S 8 was dug the northern part of a complex, consisting of adobe, ceramics and

[6] El Susi, Burtănescu, 2000, 258.

[7] El Susi, Burtănescu, 2000, 259.

[8] Vulpe *et alii* 2007, 136.

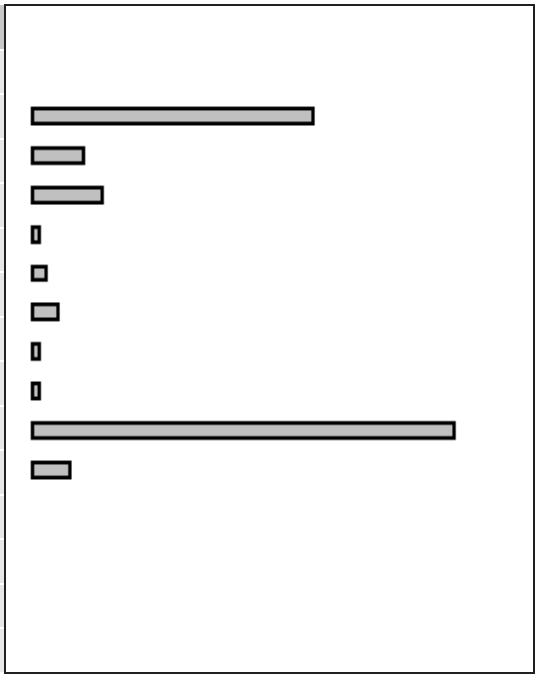
[9] Vulpe *et alii* 2006, 140.

Table 5 – Species distribution in different contexts of the Costişa layer, plateau B.

Context	Structure	Cattle	Pig	Sheep-goat	Horse	Dog	Red deer	Boar	Hare	Unspecified	NISP
S6/C4-5/b-c/ 0.26-0.30 m/2005	Pit 1			4			3			1	8
S7/C5b/ 0,35-0,40 m/2006	Complex 1	4		2			1			4	11
S7/C2c/ 0.61 m/2006	Nearby the hearth no. 16			1							1
S8/C2-4, 9b-c/ 0.28-0.39 m/2006		14	4	2						1	21
S14/C3c/ 0.24 m/2007	Nearby the hearth no 19	1									1
S14/C1-3 b-d/0.19-0.31 m/2007		18	4	1	1	2		1	1	13	41
S16/C1d/ 0.33 m/2008		7		1							8
Total		**44**	**8**	**11**	**1**	**2**	**5**	**1**	**1**	**19**	**91**

Table 6 – Species frequencies on the plateau B sample (NISP).

Taxon	NISP	%
Bos taurus	45	61.64
Sus domesticus	8	10.96
Ovis/Capra	11	15.07
Equus caballus	1	1.37
Canis familiaris	2	2.74
Cervus elaphus	4	5.4
Sus ferrus	1	1.37
Lepus europaeus	1	1.37
Total domestics	67	91.78
Total wilds	6	8.22
Total determined	73	100
Splinters	18	
Mammals	91	
TOTAL SAMPLE	91	



animal remainders. As animal bones, we identified twenty-one remains of seven animals: two cattle, two pigs and two sheep. Cattle slaughtered at 16-18 months (in the warm season) and over 3-4 years, two pigs at 10-12 months and 16-18 months and sheep between 4-6 years and over six years. A splinter was not determined (Table 5). Excavations during the 2007 campaign provided about (42) bones.

At a hearth crust (V19), partially covered by a broken vessel, oriented with the mouth down preserved at a depth of 0.18 meters. In its vicinity a fragmentary scapula from cattle was found. By removing the stones overhead the hearth, a broken bowl of Costişa type was found and nearby, agglomerations of ceramic broken on the spot, overlaying[10]. From that context, at 18-30 cm depth, 41 bones from at least eight individuals determined. Eighteen bones originate in different body parts of two cattle, slaughtered at 24-28 months and 4-5 years; to a pig 17-21 months old belong to a humerus, a rib and a tooth (M3 in eruption), from a sheep 4-6 years old belong to a

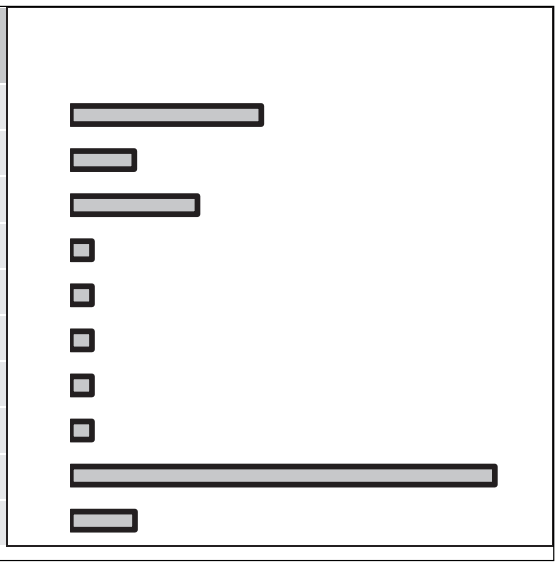
[10] Vulpe *et alii* 2008, 115.

Table 7 – Cattle age profiles on the plateau B.

Year	Context	Depth	Piece	Side	Element	Age (months)
2006	S8/C3c	0.31 m	M^2	l	Eruption	16-18
2006	S7/C5b	0.28 m	M^3	l	Unworn	30-32
2006	S8/	0.44 m	P_2-M_3		Erupted	36+
2007	S14/C1d	0.20 m	M^3	l	Eruption	24-28
2007	S14/C2c	0.19 m	M^2	r	Erupted	36+
2007	S14/C3a	0.15 m	M^2	r	Erupted	36+
2007	S14/C1d	0.18 m	P^2+P^3		Erupted	48+
2008	S16/C1d	0.33 m	M^2	r	Eruption	16-18

Table 8 – Species frequencies on the plateau B sample (MNI).

Taxon	MNI	%
Bos taurus	9	39.12
Sus domesticus	3	13.04
Ovis/Capra	6	26.08
Equus caballus	1	4.35
Canis familiaris	1	4.35
Cervus elaphus	1	4.35
Sus ferrus	1	4.35
Lepus europaeus	1	4.35
Total domestics	**20**	**86.94**
Total wilds	**3**	**13.06**



mandible with M3 in erosion-g[11]. To a small-stature dog a half left mandible and a right distal femur assigned. A broken tooth derives from horse. An acetabulum from hare and a distal humerus (Bd/ Dd-55/ 53.5 mm) from wild boar complete the sample (Table 10). Thirteen shafts were not determined; two of them are calcined and come from a small specimen. Eight remainders provided by 2008' campaign, seven of them from a cow culled in 18-24 months (Ph 1 proximal not fused) and mature (M1/ M2-worn, stage-k). To sheep of 18-24 months old belongs a metacarpal, distal just fused. Overall cattle sum up 45 fragments meaning 61.6% as NISP (Table 6) and 39.13% as MNI (Table 8). According to dentition, seven individuals presumed (Table 7); they were killed in 16-18 months, 24-28 months, 32 months and over three years (four specimens). In relation to timing of fusion, two individuals in 18-24 months and another of 2-3 years old were presumed. Overall, from nine specimens 55.5% are young and sub-adult, slaughtered for beef and 44.5% mature, for by-products (haulage, dairy products). The few metric assessments suggest weaker individuals, perhaps cows. The small ruminants rank the second by 11 fragments, accounting for 15.1% as NISP and 26.09% as MNI. The sample originates in a goat and five sheep, slaughtered over 3-4 years (Table 9). Largely the bones of juvenile and sub-adult specimens do not exceed one-third, prevailing those that reached the adulthood. Definitely their exploitation was mainly focused on dairy products, wool and meat subsidiary. The pig quotes by 11% as NISP and 13.04% as MNI. The material derives from at least one specimen of 10-12 months, another of 16-18 months and the third of 17-21 months. An eroded upper molar with roots cut off assigned to a horse;

[11] Grant 1982, 92.

Table 9 – Sheep / goat age profiles on the plateau B.

Context	Depth	Side	Mandible			Age
			M1	M2	M3	
S6/C4a/Pit 1	0.26-0.30 m	Right			f	3- 4 years
S8/C3g	0.31 m	Left			j	> 4 years
S8/	0.44 m	Right			h	> 4 years
S7/C3c/Cpl. 1	0.55 m	Right	e	b		12-16 months
S14/C1c	0,31 m	Right			g	> 4 years

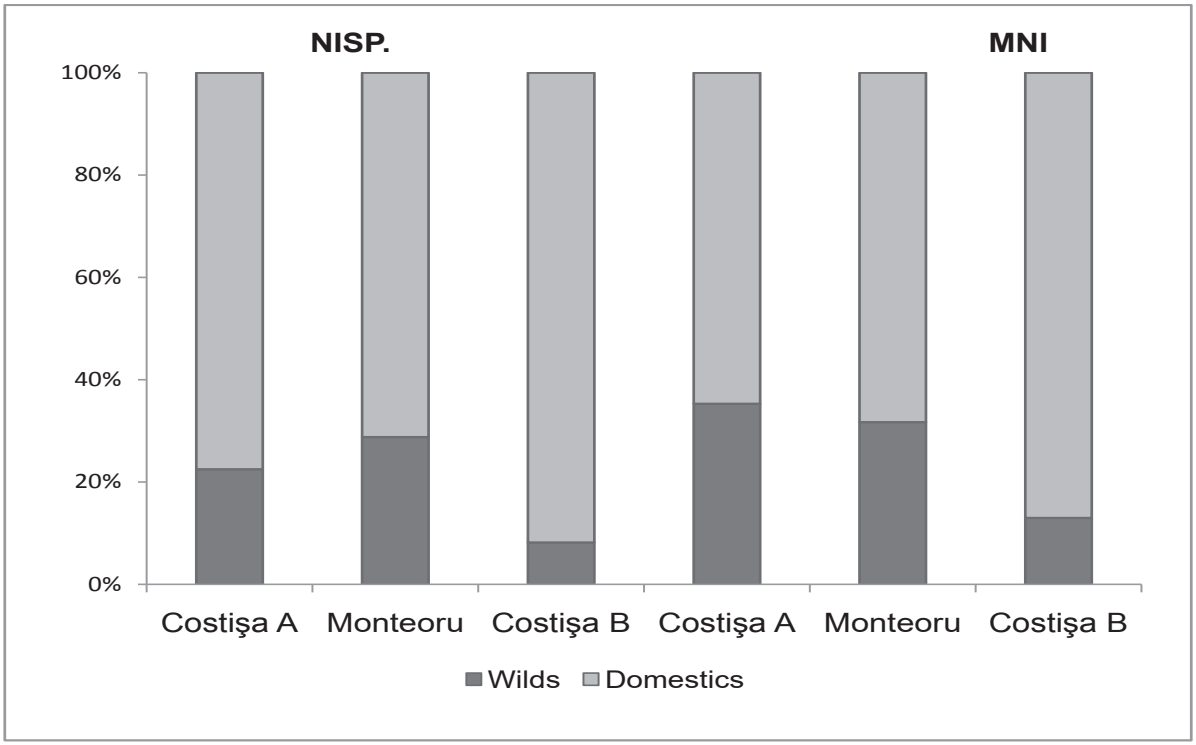


Fig. 4 – Domestic / wild ratio in Monteoru and Costişa habitations.

a broken jaw and a distal femur belong to a dog; both pieces come from a small-medium sized specimen. The wild species have a modest participation in the sample; they represent about 8.2% as NISP and 13.04 % as individuals. Among them, red deer ranks the first with 4-5%, followed by wild boar and hare, each other with 1.4% as NISP and 4.35% as MNI. Despite the small samples, a parallel between the data from both locations (plateaus A, B) allows the following clarifications. Some differences between species frequencies in the two areas registered, as it follows. The predominance of cattle bones by 61.6% on the plateau B versus 32.5% on the plateau A; in compensation, the pig reaches 20% on the plateau A, against 11% in the other point. The rate of small ruminants slightly varies in between them. Because the both samples count below 100 fragments, we do not attribute any meaning to these fluctuations. There are also discrepancies related to hunting, so 8.2% is the rate of the plateau B versus 22.5% on the plateau A. The disparity is prominent mainly as MNI, namely 35.3 / 13%. The rapport between bones from large-bodied and small-bodied specimens' highlights a slight increase in the first class on the plateau B. In fact, the remainders of cattle dominate in that location. To be a coincidence or some bones could have discarded from the plateau A. Discrepancies between samples are irrelevant when it comes to age profiles. In the researchers' opinion, it is possible that the Costişa community set on "*Cetăţuia*" before Monteoru community"[12]. It could have been a seasonal dwelling as the slaughter profiles, do not cover all year round, only the warm season. It is a simple observation based on reducing assemblages and insufficient data.

[12] Popescu, Băjenaru 2008, 5.

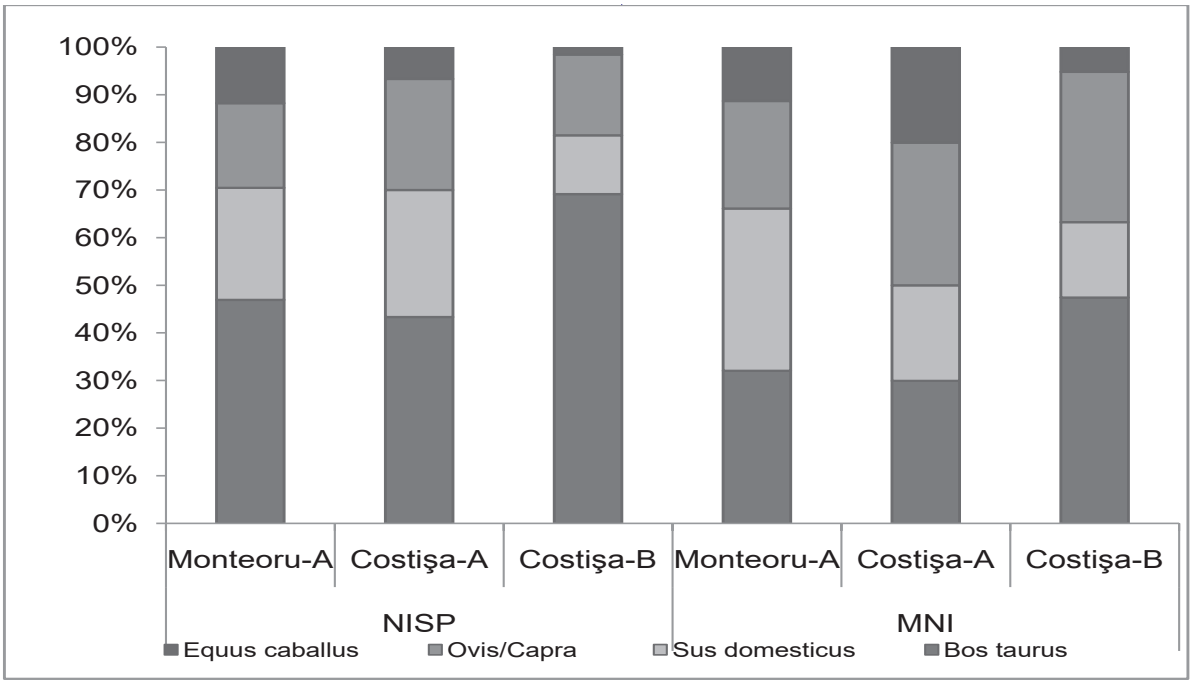


Fig. 5 – Domestic mammals' rate in Monteoru and Costişa habitations.

Table 10 – Metric data.

Mandibula	**Radius**	**Bos taurus**			
M3	GL	BFp	Bp	Dp	Bd
29	243				61.5
38,5		70,5	75,5	36,5	
Metacarpus-Bos taurus					**Talus**
Bp	Dp	Bd	Dd		GLl
49,5	29,5				56.5
		52	26		
Metacarp-Ovis		**Humerus- Sus ferrus**		**Talus-Sus dom. (* ferrus)**	
Bd	Dd	Bd	Dd	GLl	GLm
20,5	15	55*	53,5	57,5*	50.5
				42,5	38.5
Metacarp-Equus caballus			**Tibia-Cervus**		
Bd	Dd		Bd	Dd	
50	36,5		60.5	43,5	
Talus-Cervus			**Pelvis-LA**	**Lepus**	
GLl	GLm	Bd	13		
62,5	58	39,5			

Unfortunately, we do not pass any information about fauna from settlements of a Costişa-type. This was a decisive reason to put into scientific circulation, such a small sample.

Since the Monteoru communities lived in turn the same area, a parallel between them would be helpful. In terms of morphometric assessments, there are no marked disparities between mammals breed, managed by the two communities. In both cases, small or medium-sized specimens with primitive features overcome. Some similari-

ties were found between Monteoru[13] and Costişa habitations on the plateau A, such as the rate of hunting. Specifically, the bones of wild species are about one third in the Monteoru layer, 28.8 % as NISP, and 31.7 % as MNI. Hunting is only 22.5 % as NISP and 35.3 % as MNI at Costişa (Fig. 4). Another aspect refers to cattle rate; it fluctuates around 32 % as NISP. The cattle prevalence in food and utility should not surprise. The habitat from extra-Carpathian region was propitious to cattle breed, so they prevail in almost all settlements of the Middle Bronze Age (despite culture). The cattle rate decreases at about 20.7% in Monteoru and 17.6% in Costişa according to NMI estimation (Fig. 5). Again, the large amount of teeth from small-sized animals, in both settlements biased the cattle share as NMI. Disparity arises when considering the rate of small animals, namely pigs, sheep and goats. Their intake is much higher in the Costişa sample, with at least 4-5% then the others. Since the Monteoru habitation on the plateau B provided six animal bones, any comparison is useless. We hope that the ongoing research at Costişa to supplement the fauna database with new information on this topic.

[13] I used the Monteoru samples from the plateau A, as the richest in material.

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