
PRELIMINARY ARCHAEOZOOLOGICAL
COMPARATIVE DATA CONCERNING
THE DISTRIBUTION AND THE IMPORTANCE
OF WILD MAMMALS IN THE SITES OF
PODURI AND FETEȘTI (CUCUTENI B PHASE)

Florentina - Carmen Oleniuc,
Luminița Bejenaru

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Introduction

Cucuteni Culture appeared and spread in the eastern of Romania, over a millennium (4600-3500 B.C.) (Mantu, 1998). Belonging to the Cucuteni B phase we studied wild mammal's remains excavated from two sites: Poduri-Dealul Ghindaru (Bacău County) and Fetești-La Schit (Suceava County).

Material and methods

The faunal material was analysed within the Animal Morphology, Laboratory of Faculty of Biology, „Alexandru Ioan Cuza University” Iași. Archaeozoological analysis consists in anatomical and taxonomically identification, ageing, sexing and estimating the height of withers and the interpretation of some traces obvious on animal bones in correlation with the

important activities practiced by prehistoric population to obtain food (Baker, Brothwell, 1980; Beldiman, 2007, p. 72-157).

The typology and causality of the pathological aspects observed on wild mammal remains found in the sites of Poduri (Cucuteni B) and Fetești (Cucuteni B) was achieved within the Comparative Anatomy Laboratory of Faculty of Veterinary Medicine, Iași (Spătaru, Spătaru, 2004; Spătaru, Enciu, 2007).

Results and discussions

Of the 1030 skeletal remains of wild mammals identified in the Cucuteni B levels of the studied site, 937 remains were found in the *tell* of Poduri and 93 in the site of Fetești. In the *tell* of Poduri (Cucuteni B), of the 937 skeletal remains of wild mammals, 8 skeletal elements belonged to *Equus caballus* and 929 remains were assigned to specific wild mammals. In the site of Fetești (Cucuteni B), of the 93 skeletal remains, 3 faunistic remains belonged to horse and 90 were specific wild mammal's remains.

Hunting is an old human activity performed so as to ensure the supply of meat and other products from wild mammals (hides, hair, antlers, teeth), which enable the production of clothes, ornaments and tools in the Chalcolithic period. The reconstruction of the paleoenvironment is achieved based on remains of wild (hunted) species, most of the time represented by mammals, which have been identified in the archaeozoological samples.

Most of the bone remains of wild mammals belong to forest species (red deer, elk, fallow deer, brown bear, wild cat, wild boar, pine marten and polecat) and skirt species (aurochs, hare, roe deer); few are typical to the aquatic environment (beaver). In the Cucuteni B settlements there were also identified faunal remains of skirt-forest mammals: squirrel, fox, wolf, badger.

The horse (Equus caballus)

This species is of little importance in the diet of the Cucutenian populations, as indicated by the small number of bone remains and individuals in the Cucuteni A and B samples (tab. 1). These species should be considered wild, as there are no archaeological data relating to its domestication. The comparative distribution of *Equus caballus* in the evolution of Precucuteni-Cucuteni cultural complex and the Gumelnița culture reveals a decreasing share of skeletal remains and specimens of wild mammals in the studied samples than in the sites identified in literature data.

These were found mainly in the Cucuteni B samples (Poduri and Fetești) and they were identified in literature, juvenile specimens of 12-15 months of horse (*Equus caballus*), as well as 8-10 years old specimens. In the *tell* of Poduri (Cucuteni B) it was identified one lower tusk, characteristic of male specimens. In the site of Liveni (Cucuteni B) it was identified a metacarpus III

with length of 229 mm, gracility index of 15.28 and withers size of 141 cm, which corresponds to a large male (Haimovici, Ungurianu, 2002, p. 279-291).

In the *tell* of Poduri (Cucuteni B) there were found three worked bones of *Equus caballus* used by Chalcolithic population as chisels (made of distal part of two radius) and a tip (made of a rudimentary metapodium).

The wild mammals

In the Cucuteni B sites there were found faunal remains of mammals typical for different biotopes: forest (red deer, elk, fallow deer, brown bear, wild cat, wild boar, marten), plain (aurochs, hare, red deer), aquatic (beaver) and skirt-forest species (fox, wolf, badger, polecat and squirrel). In the Cucuteni B settlements in the Moldavian Subcarpathians the forest mammalian remains rank first, followed by those living in the forest area and then the skirt-forest species. We can say that in the prehistoric settlements, the forest areas were more extensive than today.

Depending on diet, the wild mammals identified in the Cucuteni B settlements can be ruminants (Carpathian red deer and fallow deer, aurochs, elk, roe deer), omnivores (wild boar), carnivores (brown bear, fox, marten, polecat, wolf, wild cat) and rodents (hare, beaver and squirrel). In all the studied Cucuteni B settlements, it was observed the prevalence of ruminants, among the faunal remains of wild mammals, followed by omnivores and carnivores.

Analyzing the Cucuteni B samples in comparison with the Cucuteni A samples of the studied sites, we can conclude that hunting, practiced in the Chalcolithic period, focused on large and medium-sized mammals (represented by red deer, roe deer, wild boar and aurochs), that had a considerable amount of meat, according to the number of bone remains and the number of specimens (tab. 2).

In the *tell* of Poduri (Cucuteni B) predominate skeletal remains and individuals of red deer (*Cervus elaphus*), followed by those of wild boar (*Sus scrofa ferus*), roe deer (*Capreolus capreolus*) and aurochs (*Bos primigenius*). In the site of Fetești (Cucuteni B), the hare (*Lepus europaeus*) ranks first (according to NISP), replacing the red deer (*Cervus elaphus*) and wild boar (*Sus scrofa ferus*).

Red deer (Cervus elaphus)

The largest share in the Cucuteni B phase (according to the number of analyzed bone fragments) of deer (*Cervus elaphus*) is reported in the site of Mitoc (77.47%). Similar values of the frequency of deer remains were recorded in the sites of Ghelăiești (68.50%), Cucuteni (60.67%) and Valea Lupului (64.86%). The lowest rates of red deer (*Cervus elaphus*) skeletal elements (ranked first) were identified in the studied stations of Poduri (43.35%) and Fetești (43.65%).

Only in the site of Liveni, the red deer (*Cervus elaphus*) ranked second, after aurochs (*Bos primigenius*), representing 28.92%. In the *tell* of Poduri (Cucuteni A), the deer (*Cervus elaphus*) ranked first (according to MNI), unlike the site of Fetești, where the deer (*Cervus elaphus*) ranks second (20.25%), or third in Hoisești (13.04%) (Cavaleriu, Bejenaru, 2009, p. 106-190).

In the *tell* of Poduri (Cucuteni B) it was assessed that there were small, gracile specimens of deer (*Cervus elaphus*) (with withers sizes ranging from 119.6 cm and 131.9 cm), likely attributed to female specimens, as well as robust male specimens (with withers sizes between 134.8 cm and 143.5 cm). For these 6 calcanei it was estimated the average withers size of *Cervus elaphus* at 139.4 cm.

The antler (gathered or hunted) and skeletal remains of *Cervus elaphus* represent the most often used animal material raw used in manufacturing tools or weapons in Chalcolithic period. In the *tell* of Poduri (Cucuteni B) there were identified 36 worked pieces, of which 14 were soft-hammers (38.88%), one handle and chisel (each representing 2.77%), 8 planters, tips and scrapers (each with 22.22%) and six smoothers (16.66%). In the site of Fetești (Cucuteni B) it were identified two soft hammers, handles and tips (representing each 33.33%) of the total of 6 worked pieces of *Cervus elaphus*.

Wild boar (Sus scrofa ferus)

The wild boar (*Sus scrofa ferus*) ranked second according to NISP, in almost all sites of Cucuteni B phase. The largest percentages of wild boar (*Sus scrofa ferus*) have been reported in the *tell* of Poduri (304 – 36.71%) and Fetești (21 – 38.18%), where it ranks third according to NISP and second according to MNI.

The lower frequency of bone remains of *Sus scrofa ferus* were reported in the Cucuteni B sites of Cucuteni (23.40%), Valea Lupului (19.59%), Mitoc (17.17%) and Ghelăiești (10.23%). In the site of Liveni, wild boar (*Sus scrofa ferus*) ranks third (after the deer), with a share of 17.35% of NISP, that were hunted predominantly. The wild boar (*Sus scrofa ferus*) ranks second, according to the number of analyzed specimens, in nearly all Cucuteni B samples. The highest percentages of boar (*Sus scrofa ferus*), according to MNI were reported in the eponymous station (30%) and in the *tell* of Poduri (29.03%). Wild boar (*Sus scrofa ferus*) also ranks second in the sites of Mitoc (21.04%), Ghelăiești (13.04%) and Fetești (22.22%), and third place in the site of Valea Lupului (18.51%) although the MNI frequency is lower.

Within the Cucuteni B and A communities a selection was performed of the male individuals of wild boar (*Sus scrofa ferus*) (sex ratio is 1 : 8), hunted as a food source, specimens with a lot of meat and fat, also for obtaining ornaments and tools. In the *tell* of Poduri (Cucuteni B) it was identified a fused metatarsus IV of boar with the maximum length of 96 mm and withers size of 84.48 cm,

which was attributed to a female specimen. For a wild boar radius of 207 mm, the withers size was appreciated at 107.58 cm. The wild boar (*Sus scrofa ferus*) tibia supplied the withers size of 87.15 cm, taking into account the maximum length (225 mm). These are typical for male mature specimens. In the site of Fetești (Cucuteni B), there was found a scapula having a tumour, caused by an unhealed wound (appeared in defending territory behaviour or mating periods).

In the *tell* of Poduri (Cucuteni B) the teeth and long bones of boar might have been in Chalcolithic period, the animal material raw in manufacturing tools used in weaving, removing greases, plant cultivation, finishing pottery. It were identified 9 worked pieces of boar (*Sus scrofa ferus*), represented by four knives (44.44%), three smoothers (33.34%), one needle and a spatula (each having 11.11%).

Roe deer (Capreolus capreolus)

It is ranks third, according to the frequency of the number of remains, identified in the *tell* of Poduri (89, representing 10.74%) and 8 remains found in the site of Fetești (14.54%), and in the sites (presented in the literature) of Mitoc (3.60%) and Valea Lupului (8.10%). Roe deer (*Capreolus capreolus*) ranks fourth in the sites of Liveni (10.74%), Ghelăiești (3.14%) and Cucuteni (6.38%). Roe deer (*Capreolus capreolus*) ranks third according to MNI in the *tell* of Poduri (16.12%), Cucuteni (20%), Ghelăiești (8.69%) and Mitoc, with a rate equal with that of the aurochs (*Bos primigenius*) (10.52%). In the sample Valea Lupului, the roe deer (*Capreolus capreolus*) ranks second (22.22%), while in the site of Liveni, roe deer (*Capreolus capreolus*) ranks fourth (10.34%). In the site of Fetești (Cucuteni B), wild boar (*Sus scrofa ferus*), aurochs (*Bos primigenius*) and roe deer (*Capreolus capreolus*) are found in similar percentages (22.22%).

In the *tell* of Poduri (Cucuteni B), one metatarsus of *Capreolus capreolus* has the maximum length of 209 mm, for which it was calculated the withers size of 75.65 cm. The second metatarsus has a maximum length of 208.4 mm and withers size estimated at 75.44 cm. These are probably typical for the male specimens. It was identified a metatarsus having haematoma.

The preponderance in the studied samples of shed antlers of red deer (*Cervus elaphus*) and roe deer (*Capreolus capreolus*) indicate the butchering of the male specimens, used for the large quantity of meat and / or metapods or antlers, which are raw materials for manufacturing processes. In the *tell* of Poduri (Cucuteni B), there were identified 16 worked pieces of *Capreolus capreolus*, of which 7 were used like stitches (43.75%), 4 spatulas (representing 25%), two tips and needles (with equal frequency of 12.50%) and a pendant, through perforating a medium phalanx (6.25%). In the site of Fetești (Cucuteni B), it was identified one stitch, using a distal part of a metacarpus of roe deer (*Capreolus capreolus*).

Aurochs (Bos primigenius)

It ranks third (according to the frequency of the remains) in the sites of Ghelăiești (18.11%) and Cucuteni (9.57%), assigned to Cucuteni B levels. In the other sites, belonging to the Cucuteni B phase (except Liveni), the aurochs (*Bos primigenius*) is positioned in the fourth place (according to the frequency of skeletal remains), with the following percentages: in the sites of Poduri (76 – 9.17%), Fetești (2 – 3.63 %) and Mitoc (1.80%) (Haimovici, 1986, p. 77-81). The aurochs outweighs red deer according to the prevalence of skeletal fragments, ranking first in the sites of Liveni and Mihoveni, followed by red deer (*Cervus elaphus*) and wild boar (*Sus scrofa ferus*). The aurochs (*Bos primigenius*) holds the first place according to MNI, attributed in the site of Liveni (41.37%) (Haimovici, Ungurianu, 2002, p. 279-291) and second in the site of Ghelăiești (26.08%) (Haimovici, Stan, 1986, p. 693-698), while in the sites of Cucuteni (10%) (Haimovici, 2004, p. 241-251), Valea Lupului (14.81%) (Haimovici, 1962, p. 291-321), Mitoc (10.52%) (Haimovici, 1986, p. 77-81) and Poduri (9.67%) the wild boar (*Sus scrofa ferus*) came in fourth (according to analyzed specimens).

In the *tell* of Poduri (Cucuteni B), it was found an astragalus of *Bos primigenius*, polished and used as smoother.

For artiodactyls ruminant and omnivorous mammals, mainly identified in the Cucuteni B samples, the slaughtering age of roe deer (*Capreolus capreolus*), wild boar (*Sus scrofa ferus*) and aurochs (*Bos primigenius*) is mainly between 4-6 years, unlike red deer (*Cervus elaphus*) which was slaughtered between 6-8 years.

Fallow deer (Dama dama)

In the *tell* of Poduri, there were found four skeletal fragments, belonging to the thermophilic specie *Dama dama* (0.04%), that were attributed to a mature individual (0.68%). Their presence in the Chalcolithic site emphasizes its adaptability to a Chalcolithic climate, much warmer than the current one (Drăgan, Airinei, 1997, p. 157-182).

The identification of fallow deer bone remains is explained by the northern distribution boundary of the species in the Moldavian Subcarpathians. In the Precucuteni sample of Andrieșeni, there were only found antler fragments attributed to species *Dama dama*, which can likely be explained by the intertribal trade and / or the annual antler shedding correlated with reproductive cycle and temperature variations (Ion, Ion, 2002, p. 77-119). The presence of the fallow deer was also reported in the Cucuteni A sample from Poduri only through a metatarsus from an adult individual.

The share of the skeletal remains of carnivorous mammals found in the Cucuteni B samples is reduced. There were identified carnivorous mammals specific woodland areas: brown bear (*Ursus arctos*), wild cat (*Felis silvestris*),

pine marten (*Martes martes*), polecat (*Mustela putorius*) and skirt-forested species: fox (*Vulpes vulpes*), wolf (*Canis lupus*) and badger (*Meles meles*).

In the *tell* of Poduri (Cucuteni B), the carnivores totals 49 bone fragments. Most carnivorous mammal skeletal elements that were identified come brown bear (*Ursus arctos*) (16, representing 32.65%) and wild cat (*Felis silvestris*) (14, representing 28.57%), fox (*Vulpes vulpes*) (7, with a share of 14.28%). In the same site, there were found 6 skeletal elements belonging to marten (*Martes martes*) (12.24%), 3 to wolf (*Canis lupus*) (12%). Polecat (*Mustela putorius*) was represented by 2 bone fragments, with a percentage of 4.08%, while badger (*Meles meles*) was present with one skeletal element (2.04%). In the *tell* of Poduri (Cucuteni B), it was found a lower jaw of fox with a dental pathology (discontinuity), caused probably by changing climate and genetic disorders.

In the site of Fetești (Cucuteni B) there were identified 5 bone remains of carnivorous mammals. There were identified 3 bone fragments of fox (*Vulpes vulpes*), representing 60%. One bone fragment was attributed to pine marten (*Martes martes*) and one to wild cat (*Felis silvestris*), with the same percentage (20%). The increased frequency of the skeletal remains from mammals in the *Carnivora Order* in the sites of the Cucuteni B phase, specific to forested areas (wild cat, pine marten, brown bear) indicates a larger distribution area than the current one for these species.

Unlike Cucuteni A phase and the Gumelnița culture, in Cucuteni B levels of the studied sites it was observed a decline in the number of identified bone remains of carnivorous mammals, because of deforestation and population growth. In the *tell* of Poduri (Cucuteni B) there was identified only one upper tusk from a bear (*Ursus arctos*), which is typical for an adult male specimen.

Rodent mammals are poorly represented, according to the percentage of remains and specimens attributed to them, in Cucuteni A and B samples; 3 species of rodent mammals were identified: beaver (*Castor fiber*), hare (*Lepus europaeus*) and squirrel (*Sciurus vulgaris*).

In the *tell* of Poduri (Cucuteni B), the skeletal remains of the rodent mammals sum up to 46. There were identified 12 beaver skeletal remains (attributed to an adult specimen), which became extinct in the current fauna of our country, 4 squirrel (*Sciurus vulgaris*) skeletal elements (from two specimens: one immature and the second adult) and 30 hare remains (from two specimens). The presence of the beaver (a species that became extinct in the current fauna of our country) in the *tell* shows a richness of water network.

In the site of Fetești (Cucuteni B) the number of skeletal remains belonging to the *Rodentia Order* totals 32. There were identified only 2 small-size species, represented by hare (*Lepus europaeus*) and squirrel (*Sciurus vulgaris*). The number of bone elements of *Lepus europaeus* (25, from an adult specimen) exceeds the skeletal elements of wild boar (*Sus scrofa ferus*) (21) and red deer (*Cervus elaphus*) (24). There were also analyzed 7 squirrel (*Sciurus*

vulgaris) bone fragments (attributed to the two specimens). Within the same studied culture, the frequency of rodent mammal's increases from the north towards the southern distribution area of the Cucuteni communities.

The transition from Cucuteni A to Cucuteni B showed a decrease in the frequency of beaver skeletal elements (due to deforestation and environmental temperature increase) and an increase in the frequency of squirrel (*Sciurus vulgaris*) skeletal remains. For carnivore and rodent mammals, hunting was done primarily for adult specimens, unlike older specimens of slaughtered brown bear (*Ursus arctos*).

Conclusions

Hunting is an old human activity performed so as to ensure the supply of meat and other products from wild mammals (hides, hair, antlers, teeth), which enable the manufacturing of clothes, ornaments and tools or weapons used in the Chalcolithic settlements in weaving, removing grease, wood processing, pottery finishing and plant cultivation.

The reconstruction of the paleoenvironment is achieved based on description of the remains of wild (hunted) species, represented by mammals that have been identified in the archaeozoological samples, indicating different biotopes. Depending on the environmental conditions, most of the bone remains of wild mammals identified in the studied archaeological sites belong to forest species (red deer, fallow deer, elk, brown bear, wild cat, wild boar, marten) and skirt species (aurochs, hare, roe deer); few are typical to the aquatic environment (beaver).

For red deer (*Cervus elaphus*), wild boar (*Sus scrofa ferus*) and roe deer (*Capreolus capreolus*) the withers size, calculated according to metapods and tarsus bones in the studied Cucuteni B tell of Poduri, is similar to that in the Cucuteni A phase and to the withers height in the Gumelnița culture.

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Sample	NISP	%	MNI	%
Poduri	8	0.08	2	1.37
Fetești	3	0.44	1	2.17
Ghelăiești	6	0.63	2	2.02
Mihoveni	–	–	–	–
Cucuteni	3	0.88	1	2.5
Mitoc	–	–	–	–
Valea Lupului	1	0.19	1	1.41
Liveni	7	0.90	3	2.89

Tab. 1. The distribution of horse (*Equus caballus*) remains and individuals, identified in the sites belonging to the Cucuteni B phase

Sites	Poduri (Cucuteni B)				Fetești (Cucuteni B)			
	NISP	%	MNI	%	NISP	%	MNI	%
<i>Cervus elaphus</i>	359	38.64	14	28.57	24	26.66	3	21.42
<i>Capreolus capreolus</i>	89	9.58	5	10.20	8	8.88	2	14.28
<i>Sus scrofa ferus</i>	304	32.72	9	18.36	21	23.33	2	14.28
<i>Bos primigenius</i>	76	8.18	3	6.12	2	2.22	2	14.28
<i>Dama dama</i>	4	0.42	1	2.04	–	–	–	–
<i>Alces alces</i>	2	0.21	1	2.04	–	–	–	–
<i>Ursus arctos</i>	16	1.72	2	4.08	–	–	–	–
<i>Felis silvestris</i>	14	1.50	1	2.04	1	1.11	1	7.14
<i>Canis lupus</i>	3	0.32	2	4.08	–	–	–	–
<i>Vulpes vulpes</i>	7	0.75	1	2.04	3	3.33	1	7.14
<i>Meles meles</i>	1	0.10	1	2.04	–	–	–	–
<i>Martes martes</i>	6	0.64	2	4.08	1	1.11	1	7.14
<i>Mustela putorius</i>	2	0.21	1	2.04	–	–	–	–
<i>Castor fiber</i>	12	1.29	2	4.08	–	–	–	–
<i>Lepus europaeus</i>	30	3.22	2	2.04	25	27.77	1	7.14
<i>Sciurus vulgaris</i>	4	0.42	2	4.08	7	7.77	1	7.14
Total wild remains	929	100	49	100	92	100	14	100
<i>Equus caballus</i>	8	–	2	–	3	–	1	–
Total	937	–	51	–	95	–	15	–

Tab. 2. The comparative distribution of remains and specimens of wild mammals in the sites of Poduri and Fetești (Cucuteni B)

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