

ANIMALS IN THE ECONOMY AND RITUALS OF THE CUCUTENI
SETTLEMENT FROM PODURI-DEALUL GHINDARU
(BACĂU COUNTY, ROMANIA)*

LUMINIȚA BEJENARU¹, GEORGE BODI²

Keywords: archaeozoology, Chalcolithic, Cucuteni culture, Poduri-Dealul Ghindaru, economy, rituals.

Abstract. *The present paper represents a synthesized archaeozoological approach to the Cucuteni site of Poduri-Dealul Ghindaru (Bacău County, Romania). This study explores various roles of animals in the economy and rituals of a Chalcolithic community. Animal remains are described in terms of frequencies, anatomy and taphonomy. Temporal analysis of several characteristics, including taxonomic frequency, indicates changes in the prehistoric local economy. Types of special animal deposits are described, as well as the interpretation of their ritual meaning.*

Rezumat. *Prezenta lucrare reprezintă o abordare arheozoologică sintetizată a sitului Cucuteni de la Poduri-Dealul Ghindaru (județul Bacău, România). Acest studiu analizează diferite roluri ale animalelor în economia și ritualurile unei comunități calcolitice. Resturile de animale sunt descrise în termeni de frecvențe, anatomie și tafonomie. Analiza temporală a unor caracteristici, incluzând frecvența taxonilor, indică modificări în economia locală preistorică. Sunt descrise tipuri de depozite speciale de animale, precum și interpretarea semnificațiilor rituale.*

Introduction

This study concerns the site of Cucuteni culture, discovered in the Poduri-Dealul Ghindaru locality (Bacău County, Romania). The site of Poduri-Dealul Ghindaru, located in eastern Romania (46°27'59"N, 26°32'10"E),

* This work was supported by the grant of the Romanian National Authority for Scientific Research, CNCS-UEFISCDI, project number PN-II-ID-PCE-2011-3-0885.

¹ "Alexandru Ioan Cuza" University of Iași, Faculty of Biology, Arheoinvest, Bd. Carol I, 20A, 700505, Iași, Romania; Romanian Academy — Iași Branch, Institute of Archaeology; lumib@uaic.ro

² Romanian Academy — Iași Branch, Institute of Archaeology; bodi@arheo.ro

stands at 429 m.a.s.l. on a 30 m-high terrace on the right bank of the Tazlăul Sărat river and has a known extent of c. 1.2 ha.

Research at Poduri–*Dealul Ghindaru* began in the 1979–1996 period, under the direction of the archaeologist Dan Monah, and later, in 2000–2007, an extensive archaeological work was conducted, under the direction of the archaeologists Dan Monah and Gheorghe Dumitroaia. The site stratification contains levels belonging to the Chalcolithic and to the Early Bronze Age³. The first Chalcolithic inhabitants of Precucuteni culture settled Poduri–*Dealul Ghindaru* towards the 5820 BP, that would correspond to a Cal B.C. date ranging between 4780 and 4619. The Cucuteni A level has been dated between 4665–4050 Cal B.C.⁴.

The archaeozoological discoveries in the *Tell* of Poduri–*Dealul Ghindaru* come from different contexts. Archaeozoological analyses began in 2001–2002, being made by Bălășescu & Radu. Their research focused on the taxonomic frequency distributions of the remains in the faunal assemblages⁵. Later, Cavaleriu & Bejenaru⁶, Bejenaru *et al.*⁷, and Oleniuc⁸ were interested in subsistence patterns associated with the Chalcolithic inhabitation in Poduri–*Dealul Ghindaru*. A ritual deposition of two pig skeletons in the Cucuteni A level of the site has been discussed by Bălășescu⁹. During the 2005 campaign, an unusual deposit of 25 astragali (twenty-one of the astragali were from cattle, three from red deer, and one from a sheep or goat) was discovered in the Cucuteni A level, dated to 4662–4465 Cal B.C.¹⁰; it was interpreted as a ritual deposit designed to bring good fortune to a new dwelling¹¹.

³ MONAH *et al.* 2003.

⁴ MONAH *et al.* 2003.

⁵ MONAH *et al.*, 2001, 190–198; 2002, 242–246.

⁶ CAVALERIU, BEJENARU 2009.

⁷ BEJENARU *et al.* 2009, 223–227.

⁸ OLENIUC 2010.

⁹ BĂLĂȘESCU 2009, 69–78.

¹⁰ MANTU 1998.

¹¹ BEJENARU *et al.* 2010.

Animals in economy

Among the animal resources, mammals constitute the majority (about 99% remains); birds, fish and molluscs are represented by less than 1% of the identified assemblages (Table 1).

In the group of identified mammals, Artiodactyls make up 97% of the total identified mammal assemblage. Fewer remains come from the other groups: Carnivores (2.5%), Perissodactyls (0.1%), Lagomorphs (0.3%) and Rodents (0.1%). Within the artiodactyl order there is an uneven representation of species. Domestic artiodactyls dominate the sample, and cattle remains are more numerous than sheep/goat and pig.

Order	Species		Cucuteni A ¹²		Cucuteni B ¹³	
			NISP	%	NISP	%
Artiodactyla	<i>Bos taurus</i>	Cattle	1895	58.13	3465	38.64
	<i>Ovis aries/Capra hircus</i>	Sheep/Goat	519	15.92	3029	33.76
	<i>Sus domesticus</i>	Pig	339	10.4	1402	15.63
Carnivora	<i>Canis familiaris</i>	Dog	57	1.75	134	1.49
Total domestic mammals			2810	86.2	8030	89.56
Artiodactyla	<i>Bos primigenius</i>	Aurochs	43	1.32	76	0.85
	<i>Cervus elaphus</i>	Red deer	170	5.21	359	4
	<i>Capreolus capreolus</i>	Roe deer	53	1.63	89	0.99
	<i>Dama dama</i>	Fallow deer	1	0.03	4	0.05
	<i>Alces alces</i>	Elk	0	0	2	0.02
	<i>Sus scrofa</i>	Wild boar	133	4.08	304	3.39
Rodentia	<i>Castor fiber</i>	Beaver	10	0.31	12	0.15
	<i>Sciurus vulgaris</i>	Squirrel	0	0	4	0.05
Lagomorpha	<i>Lepus europaeus</i>	Hare	3	0.09	30	0.34
	<i>Canis lupus</i>	Wolf	0	0	3	0.03

¹² CAVALERIU, BEJENARU 2009.

¹³ OLENIUC 2010.

Carnivora	<i>Vulpes vulpes</i>	Fox	1	0.03	7	0.07
	<i>Ursus arctos</i>	Bear	24	0.74	16	0.18
	<i>Martes sp.</i>	Marten	2	0.06	6	0.06
	<i>Mustela putorius</i>	Polecat	1	0.03	2	0.02
	<i>Meles meles</i>	Badger	2	0.06	1	0.01
	<i>Felis silvestris</i>	Wild cat	0	0	14	0.16
Perissodactyla	<i>Equus caballus</i>	Horse	7	0.21	8	0.09
Total wild mammals			450	13.8	937	10.44
Total identified mammals			3260	100	8967	100
Mollusca+Fish+Aves			60		38	
Total identified remains			3320		9005	

Table 1. Frequency of mammalian taxa from Poduri–Dealul Ghindaru (NISP=number of identified specimens)

Domestic mammals present a slightly increase in time, from 86% in Cucuteni A to 89% in Cucuteni B, showing the animal husbandry as an important occupation (Table 1). The cattle remains (*Bos taurus*) are dominant with 58%/38%, while sheep & goat (*Ovis aries/Capra hircus*) come on the second place with 15%/33% and pig (*Sus domesticus*) on the third having 10%/15% remains. The predominance of cattle is a general pattern of the Cucuteni A sites¹⁴, while the sheep & goat prevalence to the end of Chalcolithic period (Cucuteni B culture) could be related to a changing in economy or/and in landscape.

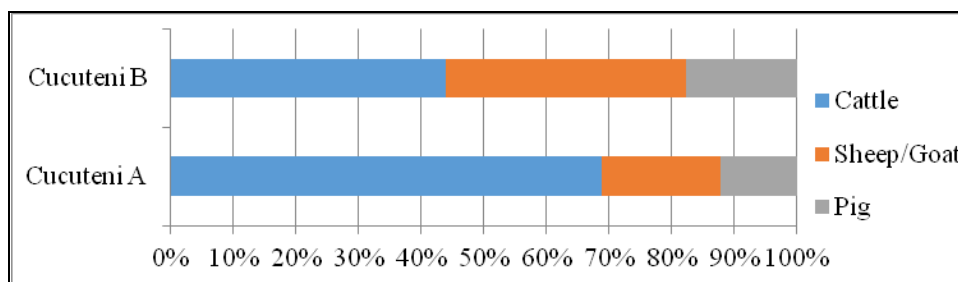


Figure 1. Frequencies of cattle, sheep/goat and pig remains (% NISP)

¹⁴ HAIMOVICI 1987, 157–166.

Figure 1 indicates a change in the rapport cattle/sheep & goat to the end of Chalcolithic. In the Cucuteni B assemblage, the sheep & goat remains are more numerous indicating that this group contributed more to the subsistence economy. Probably, the expansion of open fields, with characteristic vegetation and dry climate, favoured sheep & goat husbandry and not that of cattle.

Wild mammals have a low proportion, decreasing in time from 13% in Cucuteni A level to 10% in Cucuteni B. They consist in 13 species in Cucuteni A, and 17 species in Cucuteni B (Table 1). As game species, red deer (*Cervus elaphus*) is dominant with 5%/4% remains. Wild boar (*Sus scrofa*) is on the second place as number of identified specimens (4%/3%). We have to mention that in many other Cucuteni A assemblages red deer is also the most frequent game species¹⁵. Considering the ecological characteristics, the forest species (*Cervus elaphus*, *Dama dama*, *Alces alces*, *Sus scrofa*, *Ursus arctos*, *Felis sylvestris*, *Sciurus vulgaris* and *Castor fiber*) are dominant in both the assemblages (Table 1).

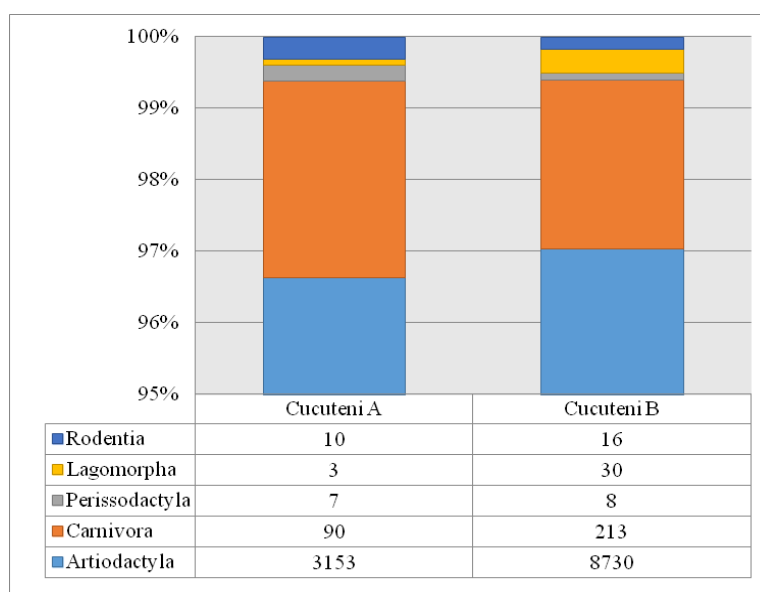


Figure 2. Frequencies of major taxonomic mammal groups (% NISP)

¹⁵ HAIMOVICI 1987, 157–166.

A temporal taxonomic variability of the animal resources used in the Cucuteni settlement of Poduri–Dealul Ghindaru is shown in the Table 1. Similar proportions among the main mammal groups are evident in the three assemblages (Figure 2). Artiodactyls, the main group, served different economic (food, clothing, raw materials for tool manufacture) and ceremonial purposes. However, we have to remark a higher percentage of lagomorphs in the Cucuteni B assemblage that could be correlated with an expansion of open field. The horse, representing the perissodactyls, has a low frequency in the Cucuteni samples, being very probably a rarely hunted wild species. Many authors consider that the domesticated form was not yet widespread in Europe at Chalcolithic time, and it appeared later in Europe, in the Bronze Age¹⁶.

Animals in Rituals

In the Cucuteni site of the Poduri–Dealul Ghindaru although the recovery of animal bones is rather limited, the animals seem to hold an important position in the religion of this ancient community. Different categories of animals, or animal parts, found in special archaeological contexts are identified, which allow an association with ritual practices to be delineated: burial of complete animals in settlements (e.g. skeletons of pigs discovered in the Cucuteni A level); parts of skeletons possibly used in divination or good fortune rituals (e.g. deposit of astragali in the Cucuteni A level).

Burial of complete animals in settlements

Evidences for intentional deposition of complete animals are rare in the Cucuteni area. Two pig (*Sus domesticus*) skeletons we discovered under the floor of a Cucuteni A₂ unburned house from the Poduri settlement¹⁷. The skeletons were deposited in two separate pits, and are interpreted by archaeologists as representing ritual depositions in foundation pits of the house. The animals were sacrificed at ages of approximately 10 months and 11–12 months respectively, at which they had not reached mature

¹⁶ BENECKE, VON DEN DREISCH 2003, 69–82.

¹⁷ BĂLĂȘESCU 2009, 69–78.

weight. The individual of 11–12 months old was probably a female, as suggested by the finding of a pig foetus bone in the same pit¹⁸. The taphonomic study points to human interventions at the level of the rib cage — at least partial evisceration in the case of youngest individual and total evisceration for second one. Intentional human marks also indicate differences in the treatment of the two individuals, suggesting that oldest individual was skinned before deposition in the pit. It is worth mentioning that both animals, although probably cut into large pieces in order to fit the relatively small pits, were not fleshed prior to being deposited, as indicated by the absence of butchering marks¹⁹.

Parts of skeletons

A. In a ritualistic deposit, formed by a painted glass full of *Litospermum officinale* fruits and several other objects, there were also found two animal astragals. The pit, which contained this discovery, was researched in 2000 and was dated between 4450–4050 Cal B.C.²⁰, being attributed to the Cucuteni A₂ phase. In the pit was found a medium-sized recipient, decorated with incisions and paintings. In this recipient there were three small chisels made of stone, two ceramic fragments, a small stone bead with a perforation start, two shells (one perforated), two astragals and several stones on a red ochre layer on the bottom of the recipient. The goblet had 160 g fruit of *Lithospermum officinale*. In the pit there were also several pieces of wooden coal²¹.

B. In the Cucuteni A₁ level, dated to 4662–4465 Cal B.C.²², a deposit of astragals was found in the 2005 campaign, directly underneath the clay platform of a house. It contained 21 astragals from cattle (*Bos taurus*), three from red deer (*Cervus elaphus*) and one from sheep/goat (*Ovis aries/Capra hircus*). The astragals were more or less altered, 13 of them have traces of polishing (blunting) on the anterior face. We mention obvious traces of

¹⁸ BĂLĂȘESCU 2009, 69–78.

¹⁹ BĂLĂȘESCU 2009, 69–78.

²⁰ MONAH *et al.* 2003.

²¹ MONAH, MONAH 2008.

²² MANTU 1998.

red ochre on astragals, and the contact of certain pieces with copper artefacts may be suggested by the specific coloration (greenish) identified in the case of four astragals²³.

Two hypotheses, use in divination and use in ritualistic games, could be valid for the Chalcolithic astragals. The astragals found in ritual deposits, together with another deposit having cultic character, seem to support their interpretation as objects laden with supernatural powers and permitting one to read the future and having a beneficent effect on their users and for the constructions in which were included²⁴.

C. During the 2001 excavation, in a shallow pit beneath the floor of a burned dwelling a series of animal remains have been discovered: a fragment of an elk (*Alces alces*) antler and parts of a juvenile pig (*Sus domesticus*) skeleton — six skull fragments, right scapula, right tibia, a left coxal fragment, a phalanx, three cervical vertebrae and a thoracic vertebra²⁵. These animal skeleton parts accompanied human remains (a foot skeleton in anatomical connection, a radius and a rib), as well as several small-sized ceramic fragments, the association being considerate as a ritual consecrating the inhabited space²⁶.

Conclusions

Relative large assemblages of animal remains was recovered and analysed from excavations in the Cucuteni site of Poduri–Dealul Ghindaru, being chronologically assigned to the cultural levels A and B.

The majority of animal remains originate from mammals, and only few pieces from birds, fish and molluscs. The Chalcolithic settlements of Poduri–Dealul Ghindaru have valorised a relative large faunal spectrum, especially in Cucuteni B (17 wild mammal species).

The subsistence economy was dominated in both phases by domestic mammals, especially cattle, a pattern similar to other Chalcolithic sites in the region. However, a change in the economy

²³ BEJENARU *et al.* 2010.

²⁴ FOSTER 1984, 73–82; REESE 1989, 63–70; HILL 2011, 407–426; LEWIS 1988, 759–768.

²⁵ BĂLĂȘESCU 2009, 69–78.

²⁶ BEM *apud* BĂLĂȘESCU 2009, 74.

appears to the end of the Chalcolithic period (in Cucuteni B), and sheep and goat became more important, probably in correlation with an environmental drying. A Chalcolithic community with economic specialization in cattle husbandry has been estimated for the Cucuteni A phase. In this case, the frequency of pig is lower (10%) than in the next phase – Cucuteni B (15%).

Besides the role of animals as contributors to the local economy, they may also be assigned a symbolic function. In the Cucuteni settlement of Poduri–Dealul Ghindaru, animals (especially domestics — pig, cattle, sheep/goat — but also wilds — red deer, elk) were used in various ritual activities, and a number of deposits of faunal remains presented very different features from the skeletal refuse. These special deposits include complete animal burials and concentrations of skeleton parts. Various reasons, such as special discovery contexts, manipulation of animal body parts, and association with other special finds, seem to indicate that the described deposits have had a special function.

REFERENCES

- BĂLĂȘESCU, A., 2009. *Ritual depositions of Sus domesticus from Poduri-Dealul Ghindaru (Cucuteni culture, Bacău County, Romania)*, Annales d'Université "Valahia" Târgoviște, Section d'Archéologie et Histoire 11 (1), 69–78.
- BEJENARU, L., MONAH, D., BODI, G., 2010. *A deposit of astragali at the Cooper Age tell of Poduri–Dealul Ghindaru, Romania*, Antiquity 184/323/2010, <http://antiquity.ac.uk/projgall/bejenaru/323>.
- BEJENARU, L., OLENIUC, C., STANC, S., 2009. *A faunal assemblage from the Chalcolithic settlement of Poduri–Dealul Ghindaru (Bacău County). Preliminary data on subsistence patterns associated with Cucuteni-phase B level*, Analele Științifice ale Universității „Alexandru Ioan Cuza” Iași, s. Biologie animală 55, 223–227.
- BENECKE, N., VON DEN DREISCH, A., 2003. *Horse exploitation in the Kazakh steppes during the Eneolithic and Bronze Age*. In: LEVINE, M.,

- RENFREW, C., BOYLE, K. (eds.), *Prehistoric Steppe Adaptation and the Horse*, Cambridge McDonald Institute, 69–82.
- CAVALERIU, R., BEJENARU, L., 2009. *Cercetări arheozoologice privind Cultura Cucuteni, faza A*, Iași.
- FOSTER, G.V. 1984. *The Bones from the Altar West of the Painted Stoa*, Hesperia. The Journal of the American School of Classical Studies at Athens, 53 (1), 73–82.
- HAIMOVICI, S., 1987. *Quelques problèmes d'archéozoologie concernant la culture de Cucuteni*. In: PETRESCU-DÎMBOVIȚA, M. (ed.) *La civilisation de Cucuteni en contexte européen*, Iași, 157–166.
- HILL, E. 2011. *Animals as Agents: Hunting Ritual and Relational Ontologies in Prehistoric Alaska and Chukotka*, Cambridge Archaeological Journal 21 (3), 407–426.
- LEWIS, R.B., 1988. *Old World Dice in the Protohistoric Southern United States*, Current Anthropology 29 (5), 759–768.
- MANTU, C.M., 1998. *Cultura Cucuteni. Evoluție, cronologie, legături*, Piatra Neamț.
- MONAH, D., DUMITROAIA, G., MONAH, F., PREOTEASA, C., MUNTEANU, R., NICOLA, D., 2003. *Poduri–Dealul Ghindaru. O Troie în Subcarpații Moldovei*. Piatra-Neamț.
- MONAH, D., MONAH, F., 2008. *Cercetări arheobotanice în Tell-ul calcolitic Poduri–Dealul Ghindaru*. Piatra-Neamț.
- MONAH, D., POPOVICI, D., DUMITROAIA, GH., MONAH, F., LUPAȘCU, GH., COTIUGĂ, V., BEM, C., BĂLĂȘESCU, A., MOISE, D., RADU, V., HAITĂ, C., SORLOAICA, N., 2001. *Poduri, com. Poduri, jud. Bacău. Punct: Dealul Ghindaru*, CCA, 190–198.
- MONAH, D., POPOVICI, D., DUMITROAIA, GH., MONAH, F., BEM, C., BĂLĂȘESCU, A., MOISE, D., RADU, V., HAITĂ, C., PREOTEASA, C., LUPAȘCU, GH., COTIUGĂ, V., 2002. *Poduri, com. Poduri, jud. Bacău. Punct: Dealul Ghindaru*, CCA, 242–246.
- OLENIUC, F.C., 2010. *Cercetări arheozoologice privind Cultura Cucuteni, faza B*. Doctoral Thesis, Faculty of Biology, “Alexandru Ioan Cuza” University of Iași.

REESE, D.S., 1989. *Faunal Remains from the Altar of Aphrodite Ourania, Athens*, Hesperia. *The Journal of the American School of Classical Studies at Athens* 58 (1), 63–70.