

Hunters and Bears throughout the Stone Age of Eastern Europe and the Urals according to Archaeological Data

ABSTRACT

This paper presents a review of the archaeological sources that allow the investigation of the place of the cave/brown bear in the life of hominids and human populations during the Stone Age and up to the Early Bronze Age. Based on the bear bone find data we discuss hunting issues, tool making and ritual aspects connected with bears. The topic of Prehistoric rock art and portable art is discussed as well. We conclude that although the value of the bear as hunting prey was higher in the Holocene than in previous eras the bear definitely had some constant role(s) in the spiritual life of hunters in both epochs. The absence of bear images in the portable art of the eastern European Neolithic is of particular interest, whereas those images are met from time to time in northern rock art. At the turn from the Stone to the Early Bronze Age, bear effigies became visible in the material culture as portable art, which can be connected with the rise of new beliefs brought by the first herders.

KEYWORDS

Brown bear / cave bear / osseous remains / art / Palaeolithic / Mesolithic-Neolithic / Bronze Age / hunter-gatherer-fishers / East European Plain / Urals

Introduction

The East European Plain represents a huge geographical space, which was partly covered by glaciation in the Pleistocene and has been inhabited by humans since the Acheulean. A study of long-term questions, such as the role of bears in the economy and spiritual life of the eastern European Late Pleistocene and Early/Mid-Holocene hunter-gatherer-fishers, seems to be required, as comprehensive studies for the Upper Palaeolithic have only rarely been published in English, quite a long time ago (Soffer 1985), and no such study has yet been performed for the Early/Mid-Holocene (however, for a review see Piezonka 2021). Relatively recent publications on this topic have been written mostly in Russian and are »hidden« in various national journals and collections of papers. Studies concerning bears and bear images in

the Stone Age have been carried out by the present authors (Zhitenev 2000; Kashina/Khramtsova 2023).

Here, we make an attempt to compare two successive eras of European humankind – the Late Pleistocene and the Early/Mid-Holocene – in a *long durée* perspective (**tab. 1**) by reconstructing the human attitude to bear species, based exclusively on the archaeological data. We will concentrate on the following questions: the ratio of profane (economical/survival) and spiritual (ritual/sacred) issues of bear perception, and the possible peculiarities and meanings of the bear in both eras (see **fig. 1** for the majority of sites mentioned in this text).

We will start by discussing the osteological issues and the sphere of prehistoric bear hunting, followed by the making of bear bone tools and the traces of



Fig. 1 Late Pleistocene and Holocene sites mentioned in the text that yielded bear bones, effigies and rock art images. – (Map M. Bolte, LEIZA).

actions performed with bear bones (exhibition and manipulation traces). Finally, we will turn to the observation of bear images in art, including not only monumental and portable art, but also the making of personal ornaments from osseous bear remains, and

will lastly discuss the place of bears in funeral rites. As a result, such a *long duree* consideration will shed light on prehistoric human-bear interaction in the northern hemisphere.

The Background of the Study

Unfortunately, the numbers of archaeological sources for eastern Europe are very unequal for the Late Pleistocene and the Early/Mid-Holocene, respectively, which causes uncertainties in many fields of study when it comes to interpretation. Also, the ways of life of hunter-gatherer-fishers in both eras were very different in many ways, although both mobile and sedentary hunters, for example, existed in the cold Eurasian steppes during the Upper Palaeolithic as well as in the Early Holocene (Koltsov 1989; Wojtal

et al. 2015). Sedentism developed to a notable degree only in the Mid-Holocene after the turn from the 6th to the 5th millennium BC, being part of what some researchers call the »Northern Neolithic revolution«, a process that reached its apogee around 3500–3000 cal BC elsewhere in the Finnish/eastern Baltic/East European forest zone and was characterized by the extensive presence of ceramic vessels, flint flake-based tools, large semi-subterranean dwellings, settlement cemeteries, trans-regional exchange, and

Period	Chronological frame
Late Pleistocene	129,000-11,700 BP
Middle Palaeolithic	300,000-30,000 BP
Upper Palaeolithic	50,000-12,000 BP
Acheuleen	180,000-150,000 BP
Mousterian	160,000-40,000 BP
Aurignacian	40,000-30,000 BP
Gravettian	33,000-22,000 BP
Pavlovian	29,000-25,000 BP
Epigravettian	21,000-13,000 BP
Magdalenian	17,000-11,000 BP
Mesolithic/Early Holocene	12,000-8,000 BP
Middle Holocene	8,000-4,200 BP
Neolithic (Russian chronology)	6,000-3,000 cal BC
Early Neolithic (Russian chronology)	6,000-4,500 cal BC
Late Neolithic (Russian chronology)	3,500-3,000 cal BC
Early Bronze Age (Russian chronology)	3,000-2,200 cal BC

Tab. 1 Chronological periods discussed in the article.

the use of exotic items, such as amber ornaments and standardized metatuff woodworking tools (Herova et al. 2013; Tarasov/Nordqvist 2022). Later on, on the turn of the 4th to the 3rd millennium BC, which in many eastern European regional terminologies is called the beginning of the Early Bronze Age, the influence of herders, archaeologically known as the Corded Ware and Battle Axe cultures, can be recognized. This movement of people occurred in eastern Europe in a north-westerly direction along the main river valleys of the forest zone (Nordqvist/Heyd 2020). Only the barest evidence of the presence of these herders is visible in the territory of modern Russia to the north of the 58th latitude, in the taiga zone, basically reflected in changes in the local ceramic types and the appearance of ritual figural stone hammer-axes (see below).

A new chapter of bear exploitation and worship (already outside the scope of our study) starts in the Middle and Late Bronze Age, largely characterized by remains of pastoralist communities in eastern European archaeological data, except for the northernmost latitudes where »pure« hunter-gatherer-fishers existed up to the Middle Ages or even until modern times.

The Bear in the Profane Sphere

Bear Hunting through the Lens of Osteology

The hunting of both species, i. e. the cave bear (*Ursus spaeleus*) and the brown bear (*Ursus arctos*) is documented for the Middle Palaeolithic in the territory of western and central Europe, but for the Upper Palaeolithic (Gravettian) the number of contexts increases exponentially. Researchers generally agree that bear hunting was performed in all European areas of human habitation (Wojtal et al. 2012).

The main evidence for bear hunting is the presence of cutmarks on bear bones that show various actions, such as killing, skinning, dismemberment, defleshing and filleting as well as holes that could point to marrow extraction. The earliest western European contexts may belong to the Middle Palaeolithic, but far more cases come from the pan-European Upper Palaeolithic (Wilczyński et al. 2015). This includes rare examples of flint projectile fragments embedded in bear bones (Münzel/Conard 2004; Germonpré/Hämäläinen 2007, 12). In contrast, bear bones in natural deposits in caves and grottos, primarily connected with *Ursus spaeleus* individuals that had

died of natural causes during hibernation, can sometimes carry the traces of scavenger teeth on them (see e. g. Stiner 2010). Along with the already known western and central European contexts of bear bone cutting in the Middle Palaeolithic (Wojtal et al. 2015; Majkić et al. 2018), a curious find came to light in the Imanay Cave (Southern Urals, Russia). The skull of a small cave bear (*Ursus spelaeos savini*) was found among a large collection of naturally deposited bones mixed with stone tools and debris of the Mousterian techno-complex, with a lens-like hole that was most probably caused by the impact of a Mousterian projectile. The skull was directly dated to 38,567–37,754 cal BC (IGAN-5652; Gimranov et al. 2021). In our view, the hole is not enough proof that this cave bear was hunted: the skull could have been hit with the stone tool after the cave bear's death. Moreover, during the study of the ten thousand pieces of faunal remains collected there, no more cut- or other marks were detected (Gimranov et al. 2021).

The presence of bear bones, both of cave bear (rarely) and brown bear (more often), at the open-air sites of the Upper Palaeolithic allows us to assume their

purely profane/economic use with more certainty and to classify them in many ways: as kitchen waste (bones with cutmarks), fuel for fireplaces, remains of food storage (hidden meat parts, never retrieved) or raw material (for tools), and as the probable remains of bear skins (phalanges, claws). According to the percentage of bear remains at such sites in central and eastern Europe, both cave bear and brown bear were hunted and utilized, but only to a very moderate degree. Cave bears were mostly extinct all over Europe and the Urals around 25,000–20,000 years ago for, as scholars propose, multi-causal reasons: increasing isolation of the populations, a rise in cave water level, and so on (Wojtal et al. 2015; Gimranov/Kosintsev 2022).

The number of bear bone finds at the open-air sites of the East European Plain is estimated as being even more moderate in comparison with the central and western European materials. The finds allow us to suggest that the game was butchered elsewhere and only chosen parts were taken to the sites. Among the group of seven Upper Palaeolithic sites at Kostenki (Voronezh region, Russia), where the material mostly belongs to the Gravettian period, between one and four brown bear bones were detected at each find spot. Only one cave bear bone was found at site 3 of Kostenki 3¹. The small short-term site Semenivka 1 (Kyiv region, Ukraine) yielded an otherwise rare substantial part of a brown bear carcass (21 bones), found in a pile together with mammoth remains. One of these bones was directly dated (conventional radiocarbon method) to the Epigravettian (Nuzhniy 1997). According to the data obtained in the Urals region, the number of cave bear bones at the open-air sites of the Late Mousterian (Bogdanovka 1: 5 bones) and Upper Palaeolithic (Gari I: 3 bones) is extremely low (Kosintsev/Plasteeva 2015, 94).

In the Early and especially the Mid-Holocene, the evidence of extensive brown bear hunting along the East European forest zone is proven by numerous cases of bone finds (Koltsov 1989; Oshibkina 1996), though, unfortunately, the federal and local museums in Soviet and post-Soviet times usually refused to keep faunal remains, which resulted in the loss of much Stone Age osteological material for modern analyses. Nevertheless, some large collections survived and archive materials left by some Soviet scholars, for example, the prominent osteologist E. G. Andreeva (Kazan Branch of the Academy of Sciences, USSR), were partly published. According to her statistics (Andreeva 1974a; 1974b; cited and discussed in Kashina/Khramtsova 2023), at the Chornaya Gora

settlement in central Russia (second half of the 4th millennium BC, Ryazan region) brown bear osseous remains take third place in quantity after those of elk (*Alces alces*) and marten (*Martes martes*), while at the neighbouring settlement of Vladychino, dated to the same time period, elk, marten and wild boar bones (*Sus scrofa*) dominated, followed by those of brown bear. The abundance of wood in the hearths of the forest zone settlements allows the suggestion that large bones were no longer used as fuel. The constant place of the brown bear among the most desired game animals can be explained by the need of highly valuable products, such as bear meat, bones, teeth, fat, guts, and skin/fur. The last three materials were indispensable from the Inuit point of view, as witnessed by ethnographical data (Fienup-Riordan 2007). Even now, brown bear hunting continues to exist in taiga regions throughout the Russian forest belt.

Bear Bone Tools

The use of bear bones in the Upper Palaeolithic was not limited to nutritional and heating needs. Sporadically, bones have been used to make tools. The baculum bones found at the German and Croatian cave sites were most probably obtained by butchering, and they carry traces of modification and of a use as awls (Münzel et al. 2021). These bones' spiritual significance will be discussed later. An awl made of a bear tibia is known from the Pavlov 1 site, in the Czech Republic (Wojtal et al. 2015, 63). Another case is a 21-cm-long »knife« with a re-touched blade made of a longitudinally split tubular bear bone from the »Hall of Signs« of the famous Kapova (Shulgan-Tash) Cave with Upper Palaeolithic paintings in Bashkortostan, Southern Urals, Russia (fig. 2, 1; see Schelinskiy 1997).

Among the Mid-Holocene contexts of central Russia (Chornaya Gora, Ryazan region, second half of the 4th millennium BC), again from the archive materials of E. G. Andreeva, we are aware of a wide spectrum of household and hunting tools made of different brown bear bones: awls of canine teeth and fibula/radius bones, chisels of radius bones, a hoe of a radius as well as daggers and a dented point made of an ulna (Andreeva 1974a; 1974b; cited and discussed in Kashina/Khramtsova 2023). The modified baculum from the neighbouring and synchronous Shagara II site, with a drilled hole for fastening, has a sharpened and partly damaged tip; it was obvious-

1 Personal communication, Dr Maria Zheltova, 11.8.2022.

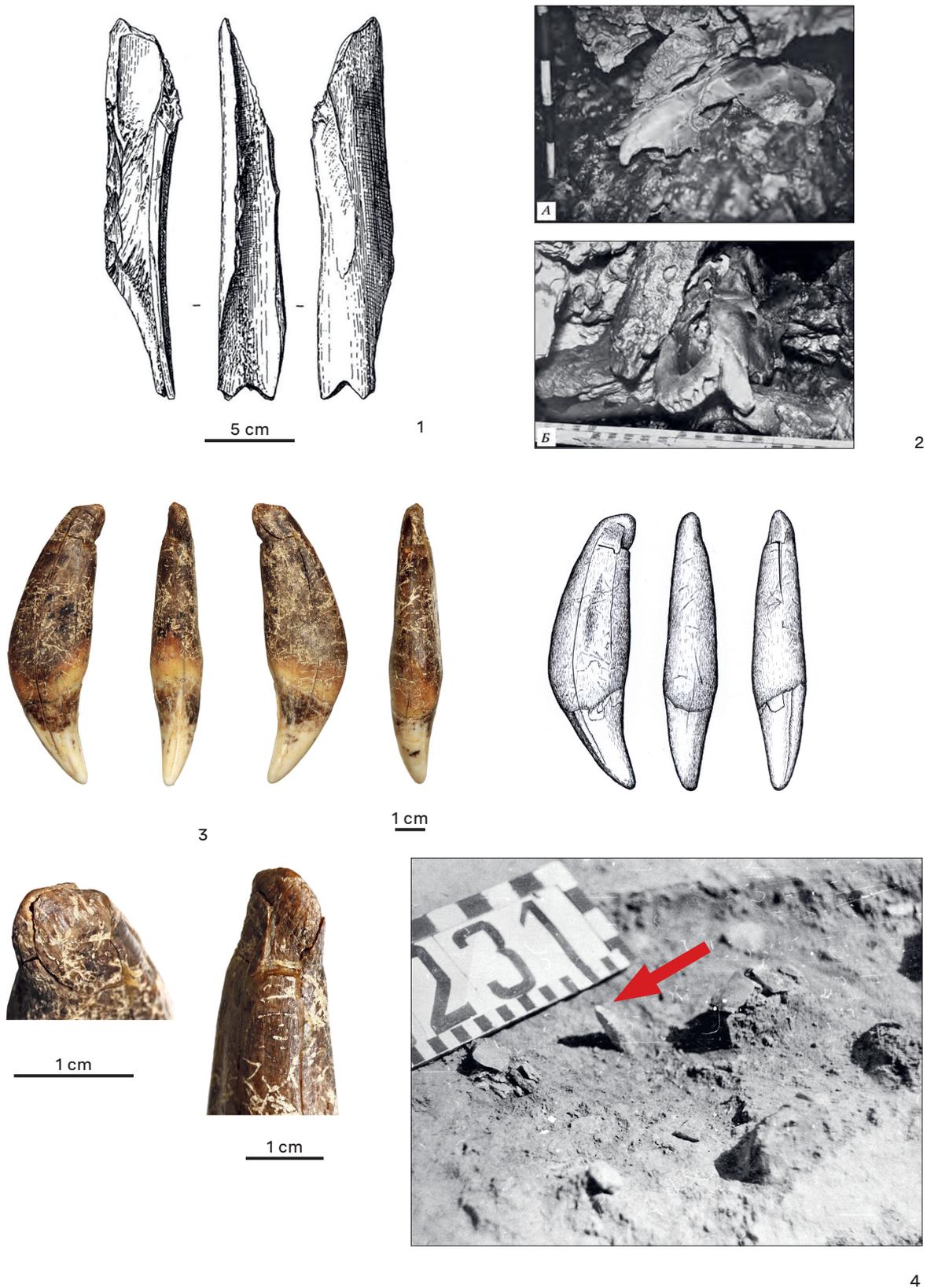


Fig. 2 Palaeolithic finds of bear bone/tooth effigies and bear skulls. **1** Kapova Cave. – **2** Zapovednaya Cave. – **3** Khotylevo 2 site. – **4** Kamennaya Balka II site. – (After Leonova 1994; Schelinskiy 1997; Kotov 2012; Gavrilov 2013; reproduced with permission of V. Schelinskiy, V. Kotov, K. Gavrilov and E. Vinogradova).

ly used as an awl (fig. 3). The rich faunal collection of the Shagara II site has still not been studied in its entirety.

To sum up, a »profane« use of bears was common for any hunting society that had the opportunity to kill this animal. Scholars suppose that the preferable period for hunting both cave and brown bears was during hibernation in winter/spring (Münzel/Conard 2004, 882; Germonpré/Hämäläinen 2007, 10). In the Upper Palaeolithic, both cave bear (herbivore) and brown bear (omnivore) were hunted by humans (Wojtal et al. 2015), but seemingly the terms/seasons and methods could have been very different. The bears' dietary preference was established by tooth microwear and stable isotope analyses of bone or tooth enamel (Münzel et al. 2014).



Fig. 3 Late Neolithic (second half of the 4th millennium BC) brown bear baculum used as an awl from the Shagara II site, Ryazan region. – (Photo I. Seden'kov, courtesy State Historical Museum, Moscow).

From Food to Rites? Bear Bone Manipulation and Exhibition

The so-called Palaeolithic bear cult has been widely discussed in both English and Russian literature (for general conclusions see: Stolyar 1985; Zhitenev 2000; Wojtal et al. 2015; Münzel et al. 2021). Despite the initial exaggeration of the quantity of »artificial« (man-made) European Palaeolithic cave complexes with the skulls/bones of cave bears, manipulation has been proven for a number of cases. The western and central European contexts, such as the exhibition of cave bear skulls (for example in Chauvet Cave, France) and bear bones stained by/painted with red ochre (caves in Belgium, France and Italy; see Germonpré/Hämäläinen 2007, 11) have already been well described, so here we will pay attention to several Russian finds that are definitely less known.

In the Sikiyaz-Tamak Cave (Southern Urals, Chelyabinsk region), a cave bear skull was found by cavers, and it shows a hole, cut marks and stains of red pigment on the left part of the forehead. Archaeological excavations documented the remains of human activity in the cave hall, dated by charcoal to the Final Palaeolithic (Zhitenev 2006). In the Zapovednaya Cave (Southern Urals, Bashkortostan), several niches and stone constructions were filled with cave bear skulls, covered by a calcite crust (fig. 2, 2). The excavation in this place has brought to light a small amount of stone artefacts. Several charcoal samples were dated to 12,400–10,000 cal BC, according to conventional radiocarbon analysis (Kotov 2012, 23). In both cases, the datings do not provide proof that the exhibited cave bear skulls belong to this period.

Without direct dating, their age remains unknown. In western Europe, such »artificial« cave complexes are dated to the Middle Palaeolithic or Early Upper Palaeolithic. However, this does not necessarily mean that the South Ural contexts belong to the same periods.

Extensive bear bone manipulation was found at the open-air site of Khotylevo 2 (Bryansk region), which is dated to the Gravettian, and this seems to be so far unique for the East European Plain. A pit with a diameter of 1 m and a depth of 0.5 m, seemingly a former fireplace, contained two mammoth skulls with ribs deliberately put into the eye sockets, fragments of tusks, some bone tools stained by red pigment, flint-working debris, and a fragment of a bear skull (Gavrilov 1998, 187–189). It is difficult to interpret this case in a persuasive manner.

Two unusual contexts of brown bear canines should be mentioned: a canine placed (or dug) upright into the occupation surface (Kamennaya Balka II site, Rostov region, 19,000–16,000 cal BP), and a lower canine pendant with an incision at the root at Khotylevo 2. This was also found upright (with its root up) in a deliberately made small pit filled with ochre, flint and bone debris (fig. 2, 3–4; see Gavrilov et al. 2013).

The interpretation of all these osseous objects remains unclear; they can only be described in terms of particular human behavior. Only certain parts of the bear carcass were taken and arranged further.

Bears in the Art of Pleistocene/Holocene Hunters

Pleistocene: Cave Art and Portable Art

Scholarly literature on the description and analysis of bear images in western European Upper Palaeolithic art is extensive (summarized by De Swart 2004). According to his review, the most intriguing topic is the distinction of cave and brown bear images in cave and portable art. The focal point is the discussion about the Chauvet Cave bear images' dating and which species of bear they represent. The cave bear became extinct in western Europe approximately 20 millennia ago, which is about the time when the entrance to this cave was naturally sealed, so the question has emerged regarding the accuracy of the paintings' dating and about the criteria of distinguishing cave and brown bears in Upper Palaeolithic rock and portable art.

The prominent forehead is believed to be the main marker of a cave bear image (Braun/Zessin 2008). The authors attempt to distinguish all plausible bear images with the help of a zoologist, who came to the conclusion that, in most cases, the depictions were of brown bears. Besides the images from Chauvet cave, for example, the stone engravings (portable art) from Gazel and Massat caves (France) were attributed to cave bears, but there was an obvious anomaly, as the latter two find spots are dated to the Magdalenian, a time period when practically no cave bears existed anymore. There may have been an artistic exaggeration of the brown bear's forehead, but still the group of Chauvet cave images could truly represent cave bears. The intriguing group of 17 bear images depicts the hunted animal, including the focal point of a hunt – the killing of the animal (De Swart 2004, 124).

Bear images are underrepresented in cave art by quantity and they constitute only about 2% of all images in general, which mainly focus on large ungulates and mammoths. Thus, we can suspect a correlation between the low economic meaning of bears and, accordingly, the small number of bear images in cave art. But let us turn to the portable art of the late glacial hunters.

In western and central European portable art, the bear image is generally represented in Aurignacian ivory sculptures, Gravettian (Pavlovian) ceramic sculptures and Gravettian/Magdalenian engravings on slate objects, and on bone/antler tools (Braun/Zessin 2008).

What is perhaps the most ancient known bear sculpture in Russia was found far away from the

East European Plain, on the Trans-Baikal site of Tolbaga, attributed to 35–25 millennia BC, based on conventional radiocarbon dating results of the site's faunal remains. A modified woolly rhinoceros vertebral fragment shows a bear (?) muzzle, nostrils and mouth (Konstantinov et al. 1983). As no comprehensive drawings and photos of the item are published, the question of its authenticity is still open.

Furthermore, the Gravettian small stylized marl sculptures of the Kostenki 1 (layer 1) and Kostenki 4 sites (Voronezh region, Middle Don River basin), usually found in fragments (heads/torso, eight pieces in total), may represent bear images (Khlopachev 2018, fig. 2).

The problem of correct zoological interpretation equally concerns portable art and cave paintings and engravings. The bear image can be easily confused with that of a felid (cave lion). Also, the distinction between cave and brown bear is problematic in the particular case of the Aurignacian, when these two species co-habited. The famous bear sculpture from the Vogelherd Cave (Germany) is made of mammoth ivory (Wamers 2015; Dutkiewicz 2021, 81–82). The best, though still ambiguous bear representations in eastern European portable art are the so-called spatulae from the Kostenki 1 (layer 1) and Avdevo sites (Voronezh and Kursk regions), dated to the Gravettian. Their handles are believed to represent a stylized head each, seemingly a zoomorphic one, through which eyes (sometimes two pairs of them) have been carved. Some pieces have small, elaborate, rounded ears that resemble those of a bear (fig. 4). The corresponding decoration, made by linear incisions, of all 64 pieces forms three transversal belts. B. Hromadova (2012) compared these decorations with the eastern Gravettian ivory female sculpture décor and described some correlations. Thus, there is not enough proof that these spatulae really are stylized bear representations.

One of the most notable conclusions made on the basis of western, central and eastern European Upper Palaeolithic zoomorphic portable art is that the amount of osseous material from hunted species does not correlate with the presence and/or amount of corresponding animal representation in portable art (Dutkiewicz 2021). This observation leads further to the conclusion that some species were hunted and eaten, while others were represented in portable art. So far, it is impossible to explain this pattern properly.

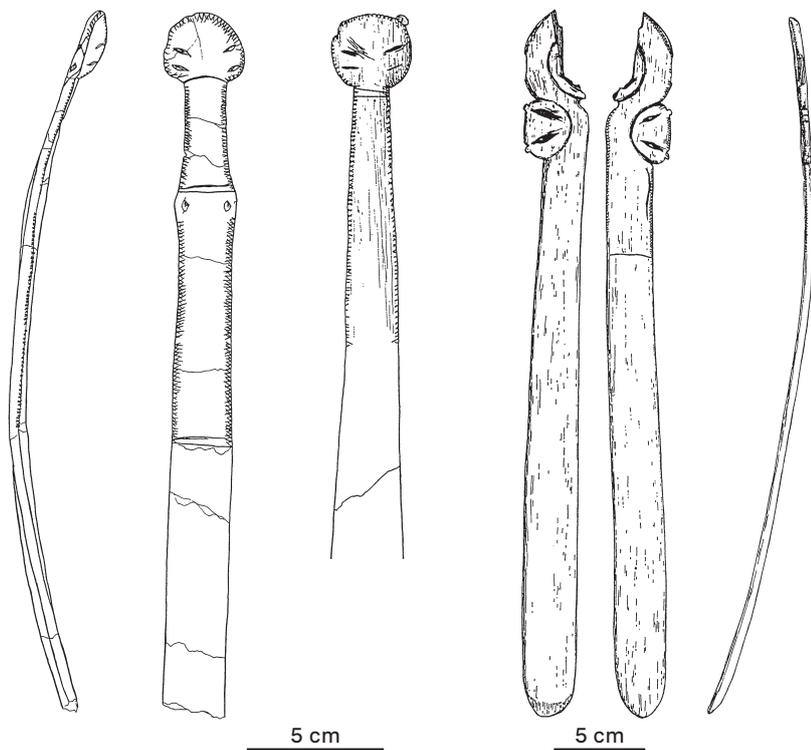


Fig. 4 Spatulae from the Avdeevo Upper Palaeolithic site, Bryansk region. – (Drawings from the personal archive of M. D. Gvozdover, Chair of Archaeology, Faculty of History, Lomonosov Moscow State University, reproduced with permission of E. Vinogradova).

Another branch of portable art are modified bear teeth, having either a drilled hole or a notch/circular incision for fastening. In western Europe, bear canine pendants are known from the Aurignacian onwards. In the Magdalenian, the number of finds seemingly increased slightly both in settlement and burial contexts, for example in Trou de Chaleux and Abri Duruthy in France (Germonpré/Hämäläinen 2007, 13; Wamers 2015). In eastern Europe, bear canine pendants are also known from the Upper Palaeolithic, after the Gravettian, from non-burial contexts (see **fig. 1**): Gintsy, Mezhirich, Anetovka II (Ukraine) as well as Khotylevo 2 and Avdeevo (Russia). Their total number only just exceeds ten pieces (Gavrilov et al. 2013; Khlopachev 2018). However, no bear tooth pendants are known from the Urals region.

Thus, a very small number of bear tooth pendants is characteristic for the whole of Europe after the Gravettian. It may also indicate the absence of specialized bear hunting, regarding the moderate quantity of bear osseous remains at the sites in general.

Holocene: Rock Art and Portable Art

The creation and re-creation of rock art and other activities performed nearby are recognized as something collective, or communal. The latter hypothesis is mainly based on a structuralist approach, and it is argued that the main theme of rock art was mythology (Zhulnikov/Kashina 2010). In the Scandinavian Neolithic, petroglyphs with bear images appear only

rarely; they may be found, for instance, as a separate image or in scenes of winter hunting, of a female bear with a cub, and of a bear chasing an elk (Helskog 2012).

Around 30 bear images appear in north-western Russian petroglyphs (Lake Onega and Vyg River, Republic of Karelia; Lake Kanozero, Murmansk Region; see **fig. 1**), which are dated to the Neolithic period but in a slightly different chronological range for each cluster. Bear image compositions in Russia are similar to the Scandinavian ones. The representation of a bear hunt is sometimes shown in connection with a bear's den, and the hunters are armed with spear or bow and arrow, or are throwing a harpoon from a boat (**fig. 5**). Thus, the bear hunt was reflected in north-eastern European petroglyphs either as a narrative (chasing on snow, attacking) or as a »frozen image« of an animal hit by a weapon. The majority of the solitary figures are difficult to interpret as a part of a particular composition or narrative. Perhaps the hunting luck of certain mythical heroes was expressed.

When we recall the bear bone statistics at the Mid-Holocene settlements in which elk, marten and wild boar dominate, then the bear hunt in rock art looks more like an extraordinary/rare theme, and the total amount of bear figures is very small. Meanwhile, distinct rock art scenes of marten and wild boar hunting are unknown, and elk hunting scenes are equally rare: for Scandinavia and north-western Russia, 17 images show bear hunting and 16 show elk hunting (Kolpakov 2020).

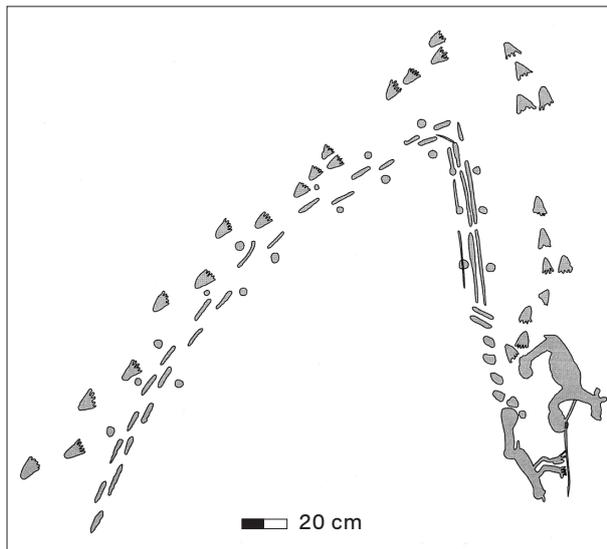


Fig. 5 Bear hunting scene from Lake Kanozero, Kamennyi Island, Murmansk region. – (After Kolpakov/Shumkin 2012, reproduced with permission).

The portable art of the East European Holocene forest zone is believed to be connected with personal matters and probably even with particular individuals. This applies especially for pendants worn on clothes and/or the body (Zhulnikov/Kashina 2010). As already mentioned, the economic role of the brown bear increases in the Holocene. Nonetheless, bear representations in portable art are known only in the form of the rare western European Mesolithic amber sculptures found mainly in Denmark and Poland (Kabaciński et al. 2011, 152, 162; Groß/Vang Pedersen 2023). According to Groß/Vang Pedersen (2023), these could as well belong to the Late Palaeolithic or Neolithic, while we think they may not date back to the Stone Age at all. Figurines from Denmark, Norway and Poland are all occasional finds and are very different to each other, and, until now, no similar sculptures have been found at any Stone Age settlement/burial context in the Baltic area. So it is extremely hard to specify the chronological position of the bear figurines from Denmark, Norway and Poland. We simply do not know the hunter-gatherer contexts of bear effigies or rock art images in central Europe.

In eastern Europe, the earliest and rare pieces of portable art representing animals are dated closer to the end of Boreal period and later (sites of the Yaroslavl region, Russia, 6600–6200 cal BC; Zhilin 2021, 67). The largest Mesolithic series of portable art (carved bone and antler sculptures of humans, elks and snakes [14 pieces in total]) are known from the famous Final Mesolithic Yuzhnyi Oleniy Ostrov burial ground, dated to 6200–6000 cal BC (Republic of Karelia, Russia; Gurina 1956; Schulting et al. 2022). The only probable bear image – though its inter-

pretation is questioned – is dated to the turn from the Mesolithic to the Neolithic. It comes from the Sise site (around 5500 cal BC, Latvia) and takes the form of an animal head at the top of an antler tool (Zagorska et al. 2021, fig. 4, 5).

As for the Neolithic (6000–3000 cal BC) of the East European forest zone, the bear image is totally absent in portable art until its latest phase (the second half of the 4th millennium BC), when a number of sporadic finds appear, such as bone, flint and amber pendants, wooden ladles, and a bone spoon and spatula. Their total number is 12, which is much less than the number of other zoomorphic (especially birds) and human images on portable art in general (fig. 6; see Kashina/Khramtsova 2023).

So-called figural axes and maces were made of stone with the use of retouching, pecking, drilling and polishing techniques. They are interpreted as ritual weaponry, deposited as offerings or for other ritual purposes, and more than 50 pieces were detected in the extended research area, including coastal Sweden, Finland, north-western and northern Russia. These items mainly date back to the 3rd millennium BC (Mantere/Kashina 2022). As already mentioned, the population of the northern latitudes of Europe retained the hunter-gatherer way of life in the Bronze Age (this is especially true for continental Russia). These archaeological finds will probably give us some hint as to how to explain the brown bear's changing place in the spiritual life of these Holocene hunters.

There is a concentration of these curious and always occasional finds in South Karelia. More than half of them represent heads of brown bears (fig. 7), the remaining ones show elk heads, phallic images and some indeterminate zoomorphic ones. In a recent study (Mantere/Kashina 2022) it is argued that the influence of the first herders' migration (Corded Ware and Globular Amphorae/Fatyanovo communities; see Nordqvist/Heyd 2020) to the taiga regions was obviously selective, and many areas were not suitable, partially or entirely, for the newcomers' lifestyle. So, in some northern regions we can see only slight changes in the material culture, mostly in ceramic types and in the sporadic presence of locally-made battle axes, which are rare stray finds. The same happened with areas settled by hunter-gatherers in Estonia, in the Leningrad region, and also in northern Belarus, though the presence of the Corded Ware culture there was more influential, probably due to more favorable herding conditions (Charniauski 2016; Kriiska/Nordqvist 2021).

The ritual stone weaponry of the North, including weapons with bear heads, seemingly combined the form, technology and raw material of the typical



Fig. 6 Portable art from the East European Plain forest zone depicting brown bears, dated to the turn from the Stone to the Bronze Age. **1; 3** Usvyaty IV, Pskov region. – **2** Sarnate, Latvia. – **4** Abora I, Latvia. – **5** Imerka VIII, Republic of Mordovia. – **6** Chornaya Gora, Ryazan region. – **7** Tamula I, Estonia. – (Photos 1–4. 7 E. Kashina; 5 A. Korolev; 6 A. Macāne [reproduced with permission]).



Fig. 7 Stone axes with bear heads from the East European Plain forest zone, dated to the Early Bronze Age. **1** Nyashabozh, Komi Republic. – **2** Volgo, Tver region. – **3** Beryozovo 29, Republic of Karelia. – (Photos 1–2 I. Seden'kov, courtesy State Historical Museum, Moscow; 3 M. Shakhnovich, reproduced with permission).

herders' »battle axes« (normally observed in burials), while the modelling/style of the 4th-millennium BC animal heads was retained. This is clearly visible when comparing the stone axes with elk heads and the Mesolithic/Neolithic antler staffs with elk heads (Mantere/Kashina 2020). Thus, the predominance of bear over elk in portable art can be recognized for the Early Bronze Age in the eastern European taiga. The reason for this lies hypothetically in the herders' attitude to the brown bear, which probably became extremely harmful to their livestock. More-

over, the literal connection of the bear image with the number-one male ritual weapon points to the rise/development of such notions as martial prowess and masculinity. Though it is not possible to propose a general rise of warlike clashes in the eastern European Early Bronze Age in comparison with the Neolithic from the burial finds, maybe at least the competition for livestock increased between communities. In this case, the image of »bear the livestock killer« could have been even more relevant (Mantere/Kashina 2022).

Early/Mid-Holocene Brown Bear Osseous Remains: Pendants and Burials

During the Upper Palaeolithic as well as the eastern European Mesolithic/Neolithic, humans were utilising bear canines. Finds are known from Mesolithic and later open-air sites and burials (Koltsov 1989). Carved notches or circular incisions at the root of a tooth, used for fastening the canine to clothes, shrouds or other soft organic materials and items, are more typical in general for the Mesolithic than for the Neolithic, when drilled holes were made much more often with the same aim. This diversity of canine root modification was observed among burial finds, though these pendants were obviously worn in everyday life, too. The richest settlement/burial materials with such finds belong to the second half of the 4th millennium BC, and they include not only bear canine pendants, but also bear molars. Modified bear remains, mostly canines, were found in 74 graves, dated from the Final Mesolithic (6200 cal BC) up to the beginning of the 3rd millennium BC. However, the majority of them belong to the 4th/beginning of the 3rd millennium BC (Macăne 2022, 120; Kashina/Khramtsova 2023). Thus, we can see a kind of a paradox: while the brown bear image occurred very rarely in sculpture and rock art in comparison with other animal and human images, the use of its canines as pendants was quite common among the forest hunter-gatherer-fishers.

Nevertheless, a rareness of baculum finds both in settlement and funeral contexts can be observed. The probable connection of these bones mainly with adult male burials is visible at the Lake Baikal Early Neolithic burial ground of Shamanka II (Losey et al. 2013, 86). In eastern Europe, only one burial with a bear baculum is known so far – the Early Neolithic burial 3 at the Kubenino settlement, northern Russia, which is also that of an adult male (Kashina et al. 2021). The presence of several unmodified and modified (into an awl) baculum bones among the settlement materials of late hunter-gatherer-fishers of the

second half of the 4th millennium BC in central Russia (see fig. 3) has a parallel in the already mentioned Shamanka II burial ground, where a sharpened baculum (an awl) was found in grave 28, and nine more pieces found at this cemetery had either traces of use, or polishing, or (one piece) a circular incision on the surface (Losey et al. 2013, 86).

Another phenomenon of the eastern European Mid-Holocene forest zone is the presence of variously-sized cemeteries, situated near or within multi-period settlements. The majority of internments are represented by single graves, but collective burials also exist. The prevailing body position is stretched supine, although the placement of the deceased in a range of other positions – stretched prone, (semi-)flexed supine, or on one side – as well as the practice of post-mortem manipulation, such as body wrapping, excarnation, the disarticulation of particular body parts, and body dismemberment were also common. The presence of unmodified bear remains, either in graves or in their close vicinity, was studied in detail using field documentation and publications (Khramtsova 2022). Bear jaws and metacarpals (both the most frequent finds) as well as teeth, skulls and phalanges were placed in or near 34 burials, while other skeletal bear parts were rare. Bear skulls and articulated paw bones were occasionally found near the graves, often in association with concentrations of burnt artefacts covered by bear paws (Kashina/Khramtsova 2023).

The presence of unmodified bear bones in these eastern European Mid-Holocene burials obviously indicates some sort of important role of the bear in ritual and funeral contexts as well as some particularly valuable qualities and properties of the bear (Macăne 2022, 112–120). The skeletal parts that were found cannot be interpreted as meat parts, but in some cases they could have been attached to bear skins, which were probably used as funeral shrouds.

Discussion

After looking through the extremely long history of bears and humans in the deep past, some questions arise that require more attention. Usually, descriptions of the Siberian rites connected with the brown bear and, most commonly, the so-called bear festivals² follow the description of Stone Age archaeological finds, so *de facto* ethnographical data are used as analogies for the archaeological data in the papers of Germonpré/Hämäläinen (2007), Losey et al. (2013) and Schmölcke et al. (2017). One contribution, however, places ethnography first, before archaeology is introduced (Münzel et al. 2021). Some scholars rightly criticize this approach (De Swart 2004, 126), arguing that the extrapolation of ethnographic data does not look convincing, mostly because of the huge distance in time and space between the periods under question, which feature different ecologies and economics. Also, the proposed theories (such as, for example, the purpose of Upper Palaeolithic cave art) are usually based on data from only one cave, or one region, and lead to a huge generalisation, which sometimes even connects data from different continents.

For the Upper Palaeolithic, either western or eastern European, the problem of accurate dating is always prominent. For the cave sites in particular, the problems of methodology and cultural heritage preservation caused by occasional finders and vandalism are also essential. After the Aurignacian, a well-known unity of material culture can be traced along the vast, cold steppes of Europe. Both bear hunting and bear bone/tooth modification have become widespread since that epoch. However, cases of cave bear skull »exhibition« in western/central Europe and the Urals demonstrate very different chronologies – the Middle/Early Upper Palaeolithic and the Final Upper Palaeolithic, respectively.

At present, the meaning of the brown bear for Upper Palaeolithic humans is impossible to decipher entirely. Most probably, it was not among the central spiritual figures of Europe, such as the mammoth, horse, bison, and »venus«. It was not a constant prey either.

In the course of the Early/Mid-Holocene the ways in which material and cultural development took place in Europe varied greatly: herding and agriculture came to western and central Europe much earlier than to eastern Europe and Scandinavia, obviously because of the climatic conditions. The eastern European and Scandinavian hunter-gatherer-fisher way

of life was changing over time, turning generally to the known degree of sedentism in the second half of the 4th millennium BC and later. For the East European Holocene forest zone, the history of human-bear relations looks more dynamic thanks to the much larger data corpus. The sporadic presence of brown bear images in rock art and the almost total absence of it in portable art is documented by a significant corpus of finds. The antagonism between »art« and practical/economic use can be demonstrated quite explicitly. We would like to explain it in this way: while elk and swan most probably had the central spiritual role and a group of smaller mammals, snakes and waterfowl likely represented the totemic ancestors implemented in pendants (Kashina/Emelyanov 2020), the brown bear was more a special and spiritually tabooed »invisible« creature, maybe relevant mainly for the realm of death. Nevertheless, the sporadic and multi-temporal/multi-regional Holocene data allow us to propose bear image connections: 1) with burials and burial grounds (Final Mesolithic, Karelia, and Final Neolithic, central Russia), and 2) with adult men (Early Neolithic burial contexts, northern Russia and Baikal).

The bear profoundly entered north European forest portable art on the turn from the Stone to the Bronze Age. The stone hammer-axes and wooden ladles are generally »constructed« as if an unusual pommel (a bear head) was attached to an already well-known object, which as a result looks quite unnatural, especially in the case of two wooden ladles (fig. 6, 1-2). This major shift could be explained as the strengthening of the bear's role and a decrease of the elk image (and its role).

Of course, these explanations are not final. Some other taiga/mixed forest animals, including those recognized as economically important/tasty, are absent in art; for example, the wild boar cannot be found among the portable or rock art images of the Early/Mid-Holocene, though it constituted a good part of the hunting prey according to its percentage in the settlements' osseous remains. This brings us back to the notion that the economic significance of an animal did not automatically make it an archaeologically visible object of worship and reproduction and, *vice versa*, economically insignificant species may not have been neglected in art and beliefs.

What was the bear's use for the Upper Palaeolithic cold steppe foragers and the Holocene hunter-gatherer-fishers in general? According to the ar-

² eloka-arctic.org/bears/bear-festivals (ELOKA: Exchange for Local Observations and Knowledge of the Arctic; accessed 27.8.2025).

archaeological data, it was definitely meat and skin. Its place in the spirituality and in the semiotic system of both eras obviously had the same connotations, judging by the uses of particular bear bones (canines,

skull, baculum). Due to the patchy state of research concerning the art, especially in view of the Upper Palaeolithic, it is necessary to be very careful in drawing conclusions.

Conclusions

After observing the human-bear interaction of the Upper Palaeolithic, Mesolithic, Neolithic and Early Bronze Age, concentrating mainly on the eastern European data, we have made an attempt to create a short (and probably incomplete) review of all the collected data in order to compare the human attitude to bears in the Late Pleistocene and the Early/Mid-Holocene. The archaeological finds can be connected with: 1) profane matters (butchering, bone tool carving), 2) matters of a yet unknown/non-deciphered purpose (exhibition of bones, selection of »special« bones, e. g. canines or baculum bones), and 3) clear spiritual matters (tooth pendants, cave art, open-air rock art, and portable art).

Both cave and brown bear were hunted in the Late Pleistocene but not as extensively as, for example, the large ungulates. In the Holocene, there was a notable increase in brown bear hunting. During both eras, bear bones were modified into tools and per-

sonal ornaments, and intentional manipulations of unmodified bear bones were extensively recorded for the Late Pleistocene, whereas they are rarely met in Holocene burials. The making of tooth pendants was characteristic for both eras in eastern Europe, but the use of bear canines was far more limited in the Upper Palaeolithic than in the Mesolithic and Neolithic, probably because of the differences in bear population size (?). The limited presence of bear images in cave paintings, engravings and portable art of the Upper Palaeolithic had a partial parallel in the north-eastern European Holocene. There, bears are rarely represented in rock art and completely lacking in portable art, in the authors' point of view, until the turn from the 4th to the 3rd millennium BC, when a rapid rise in bear depictions can be observed. This could be hypothetically interpreted as the impact of the worldview of herding communities on the spirituality of the forest hunter-gatherer-fishers.

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Ekaterina Kashina
 RU - Moscow
 eakashina@mail.ru
 ORCID: 0000-0002-7068-5741

Vladislav Zhitenev
 RU - Moscow
 macober@mail.ru
 ORCID: 0000-0003-1105-9318