

ARCHÄOLOGIE IN EURASIEN

**The Holocene History  
of the  
European Vertebrate Fauna**

Norbert Benecke (Ed.)



BAND 6



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Modern Aspects of Research

Workshop, 6th to 9th April 1998, Berlin

NORBERT BENECKE (ED.)



Verlag Marie Leidorf GmbH · Rahden/Westf.

1999

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DEUTSCHES ARCHÄOLOGISCHES INSTITUT  
EURASIEN-ABTEILUNG

Die Deutsche Bibliothek - CIP-Einheitsaufnahme

**Benecke, Norbert:**

The holocene history of the european vertebrate fauna:

Modern aspects of research; workshop, 6-9th April 1998, Berlin /

Norbert Benecke (ed.) - Rahden/Westf. : Leidorf, 1999

(Archäologie in Eurasien ; Bd. 6)

ISBN 3-89646-255-5

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Verlag Marie Leidorf GmbH  
*Geschäftsführer:* Dr. Bert Wiegel  
Stellerloh 65 · D-32369 Rahden/Westf.

Tel: +49/(0)5771/ 9510-74

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E-Mail: [vml-verlag@t-online.de](mailto:vml-verlag@t-online.de)

Internet: <http://www.leidorf.de>

Internet: <http://www.vml.de>

ISBN 3-89646-255-5

ISSN 0949-2410

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Umschlagentwurf: Holger Eckhardt, Göttingen

Redaktion: Eurasien-Abteilung des Deutschen Archäologischen Instituts, Im Dol 2-6, D-14195 Berlin

Satzherstellung, Layout und Produktion: Sievert-Druck + Service GmbH, Iltisweg 3, D-33818 Leopoldshöhe

# Holocene sites with megamammal fauna in the Urals and West Siberia

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## Abstract

The article presents a review of sites of the Pre-Urals, the Urals and West Siberia which have yielded Holocene bone remains of megamammals. According to different processes in the formation of faunal assemblages on these sites, several taphonomic types can be distinguished. Maps, tables and figures show the pattern of distribution of these types by natural zones for the different Holocene periods and the distribution of faunal assemblages as related to various variables (size, natural zone, time period). All the sites show non-uniform distribution by the regions and by chronological stages, which is probably for two reasons, namely, an insufficient number of studies performed and unfavourable soil and climatic conditions for the preservation of bones.

Keywords: Urals, West Siberia, Holocene, fauna, megamammals, taphonomy.

## Zusammenfassung

Der Beitrag gibt einen Überblick über Fundplätze des Vorurals, des Urals sowie Westsibiriens, auf denen holozäne Reste von Großsäugetieren geborgen wurden. Nach den unterschiedlichen Bildungsprozessen der Faunenkomplexe auf diesen Fundplätzen lassen sich verschiedene taphonomische Typen unterscheiden. In Karten, Tabellen und Abbildungen werden die Verteilungsmuster dieser Typen nach Naturzonen für die einzelnen Perioden des Holozäns gezeigt, desgleichen die Verteilung der Faunenkomplexe bezüglich verschiedener Variablen (Umfang, Naturzone, Zeitperiode). Die ungleichmäßige raum-zeitliche Verteilung der Fundstellen/-komplexe hat vermutlich zwei Ursachen, und zwar die unzureichende Zahl von Untersuchungen sowie ungünstige Boden- und Klimabedingungen für die Knochenerhaltung.

Schlüsselwörter: Ural, Westsibirien, Holozän, Fauna, Großsäugetiere, Taphonomie.

The first Holocene sites in the Urals, containing bone remains of megamammals, were found and examined in the XIXth century (Ghebauer, 1880). The first information about the Holocene-dated localities of West Siberia was received in the 1930s (Gromov, 1934). However, special studies of the Holocene bones of megamammals did not start until the 1960s. This was prompted by a significant increase in archaeological research in the region. At present, the total number of examined localities with Holocene bone remains of mammals in the Urals and West Siberia comes to around 1000. Bones from the major part of sites analyzed were examined by P. A. Kosintcev. Besides that, a series of publications on the topic were also used (Akhinzhanov, Makarova, & Nurumov, 1992; Andreeva & Petrenko, 1976; Kuz'mina, 1971; Petrenko, 1984; Smirnov, 1975; Zalkin, 1972). In this paper we have tried to show how all the sites are distributed by taphonomy types, chronology, natural zones and size of assemblages (*Figure 1-6, Table 1-2*).

Three large regions were studied. These are the Pre-Urals, that is the ca. 200 km wide strip adjacent to the montane part of the Urals from the west, the territory of the Ural mountains and the West-Siberian plain. According to the different processes of bone accumulation, the sites may be divided into three groups: those formed by natural processes, those accumulated due to the human activity, and those of "mixed" origin, resulting from both natural and anthropogenic factors.

The first group of sites can be assigned to the following taphonomic types: 1) zoogenic deposits in rock-shelters (grottos), 2) zoogenic deposits on open places, 3) animal burrows, 4) alluvial sites, 5) lake and bog localities. The second group of sites contains faunal assemblages accumulated as a result of human activity. These are: 1) settlements and camp sites, 2) burials, 3) sanctuaries (open air sites). The sites of "mixed" origin are characterised by the following types: 1) camps in rock-shelters (grottos), 2) sanctuaries in grottos, 3) burial mounds.

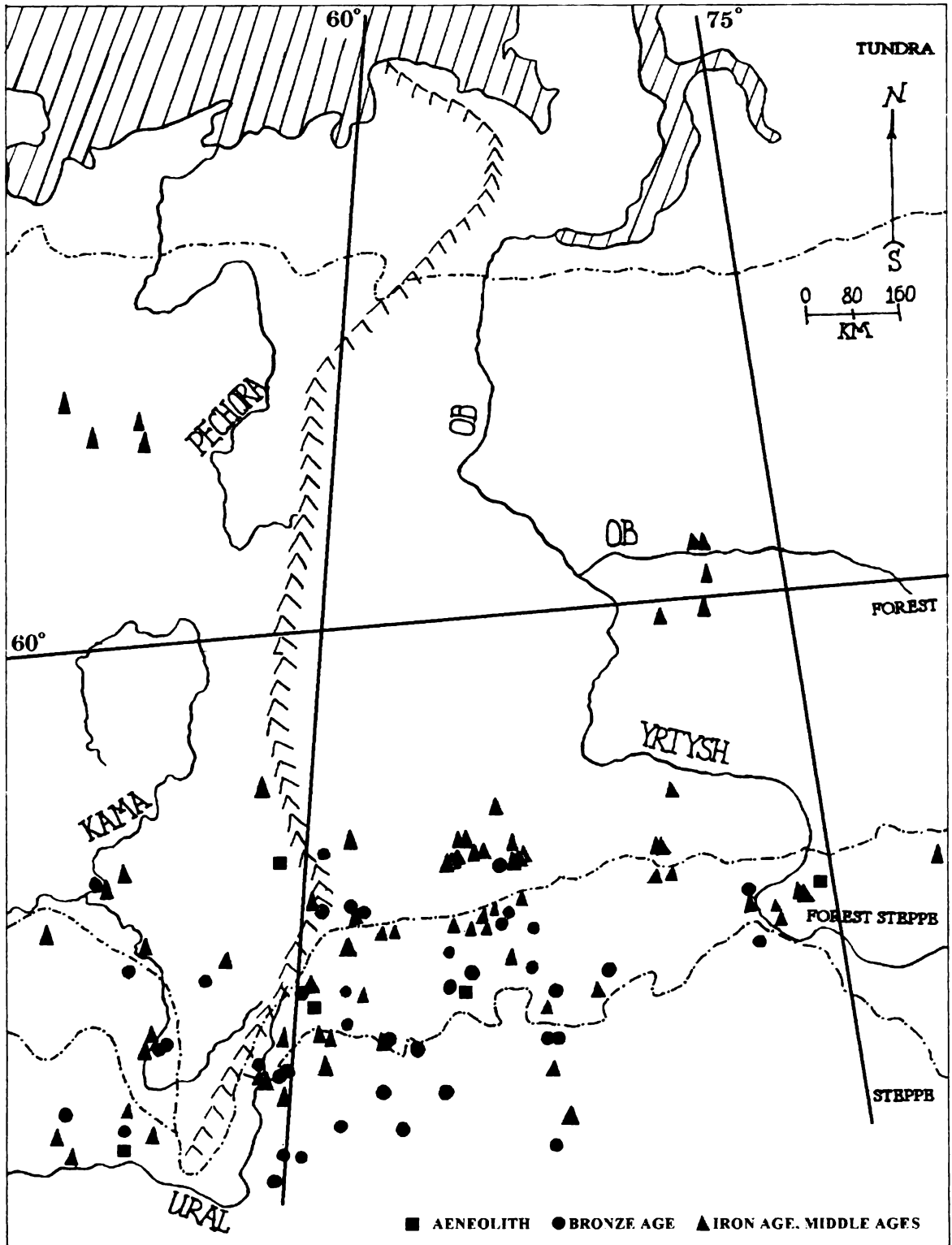


Figure 1: Location of burials with bone remains of megamammals in the Urals and West Siberia.

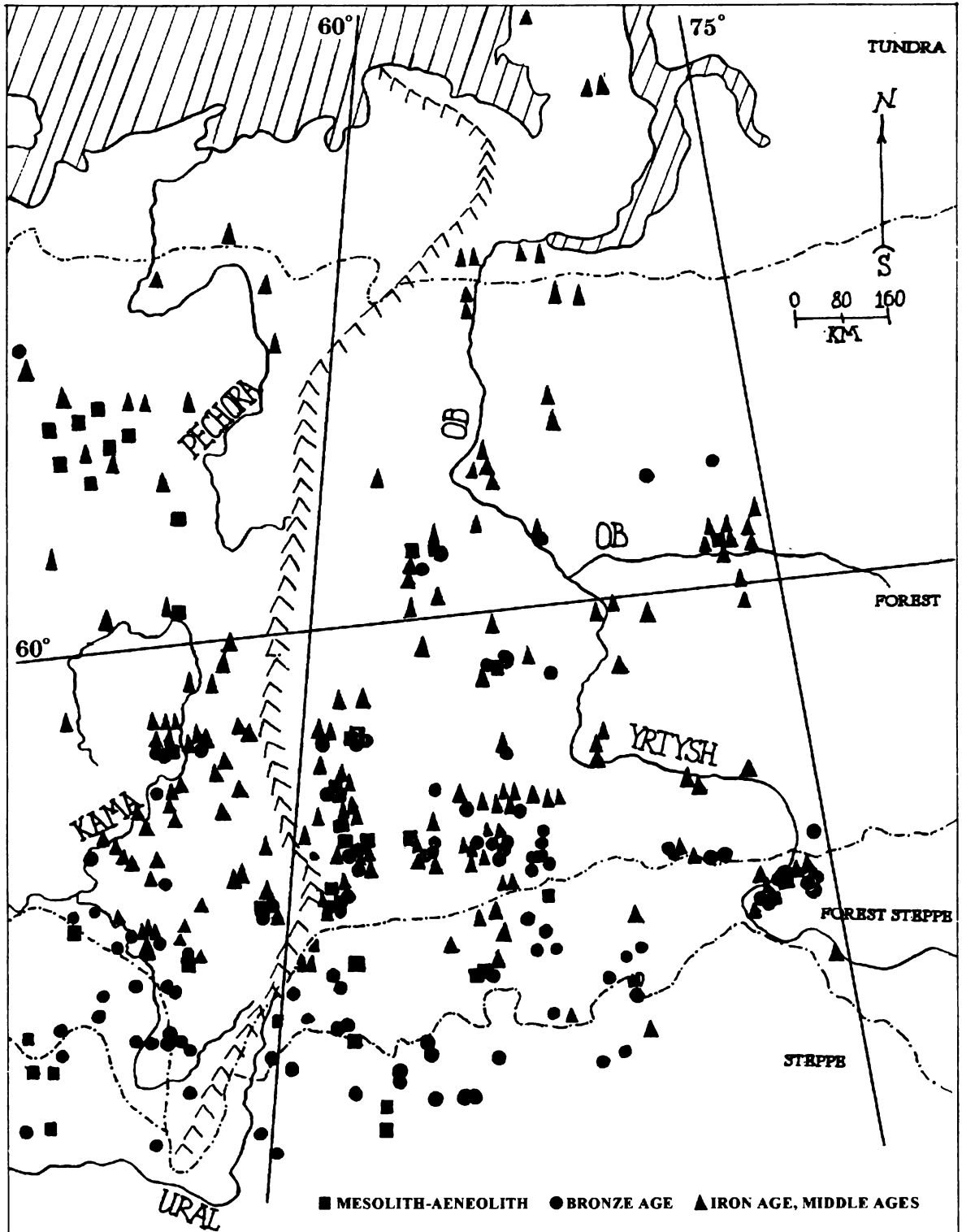


Figure 2: Location of settlements with bone remains of megamammals in the Urals and West Siberia.

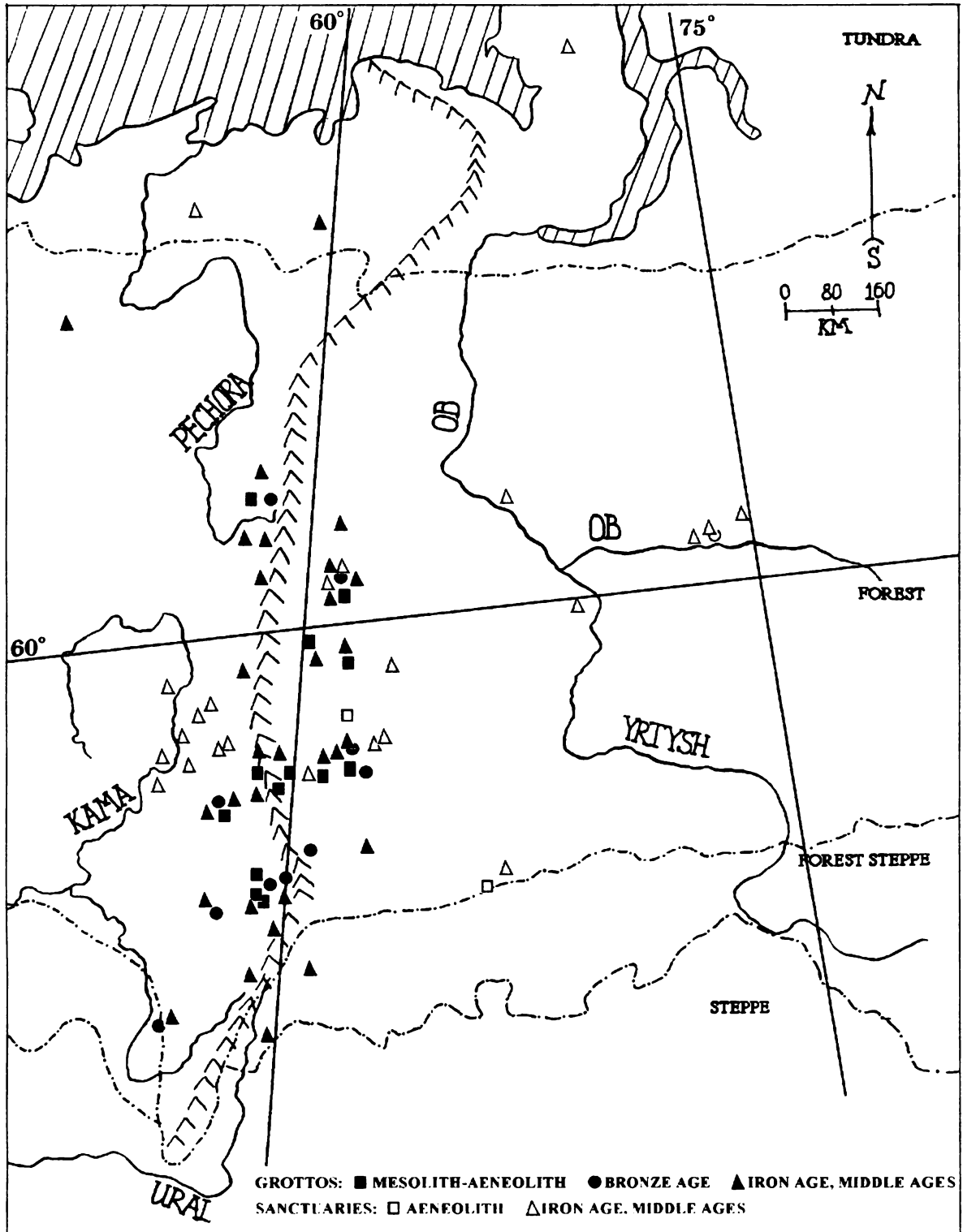


Figure 3: Location of sanctuaries (open sites) and grottos (all types of sites) with bone remains of megamammals in the Urals and West Siberia.



Table 1: Number of grotto sites in the Urals.

Types	Polar Urals	North Urals	Middle Urals	South Urals
Camps & sanctuaries	0	2	8	7
Zoogenic deposits	4	4	9	10

Table 2: Classification of sites (all types) with bone remains of megamammals according to the size of the assemblages (NISP – Number of identified specimens).

Zones	Regions	Number of bones (NISP)					
		1-100	<500	<1000	<5000	<10000	>10000
		<b>Mesolithic – Eneolithic</b>					
	Preurals	11	-	-	-	-	-
Forest	Urals	18	5	2	1	-	-
	West Siberia	7	-	-	-	-	-
Forest-Steppe	Preurals	1	4	1	1	-	-
	West Siberia	3	3	-	1	-	-
Steppe	Preurals	2	-	1	1	-	-
	West Siberia	1	2	1	2	-	1
		<b>Bronze Age</b>					
	Preurals	2	6	2	-	-	-
Forest	Urals	5	3	-	-	-	-
	West Siberia	5	3	-	-	-	-
Forest-Steppe	Preurals	5	6	20	5	1	-
	West Siberia	4	25	29	10	2	-
Steppe	Preurals	4	2	1	2	-	1
	West Siberia	1	12	9	7	1	-
		<b>Iron Age</b>					
	Preurals	-	-	2	-	-	-
Tundra	Urals	1	1	-	2	-	-
	West Siberia	4	2	-	3	-	1
	Preurals	12	26	37	12	1	2
Forest	Urals	17	25	10	8	-	-
	West Siberia	81	35	19	5	-	-
Forest-Steppe	Preurals	3	19	22	6	-	-
	West Siberia	7	28	29	17	-	-
Steppe	Preurals	8	-	-	-	-	-
	West Siberia	7	1	-	-	-	-

Faunal assemblages of the latter group cause the most difficulties. In the Urals people used rock-shelters for settlement and as sanctuaries only sporadically, whereas zoogenic deposits accumulated permanently. Thus, bones brought by people appeared to be mixed with bones of animals that perished in the cavity. However, in most sites these two groups of bones can be distinguished by different characteristics (preservation, fragmentation, etc.). The same picture is usually observed in burials. Practically all ground graves (mounds) include burrows of marmots, foxes, badgers, and other species living in animal burrows. Some of these animals

died in the burrows, and their bones were mixed with those from sacrificed animals brought by people, but usually these two groups of bones are easily to be distinguished.

Practically all sites in rock-shelters and some settlements included several layers of different age, and thus corresponding faunal assemblages. Some of these localities were radiocarbon dated, while three sites gave datings based on tree-ring chronology. In most cases the faunal assemblages were dated according to archaeological artifacts included.

Some of the taphonomic types described above were represented by a series of localities.

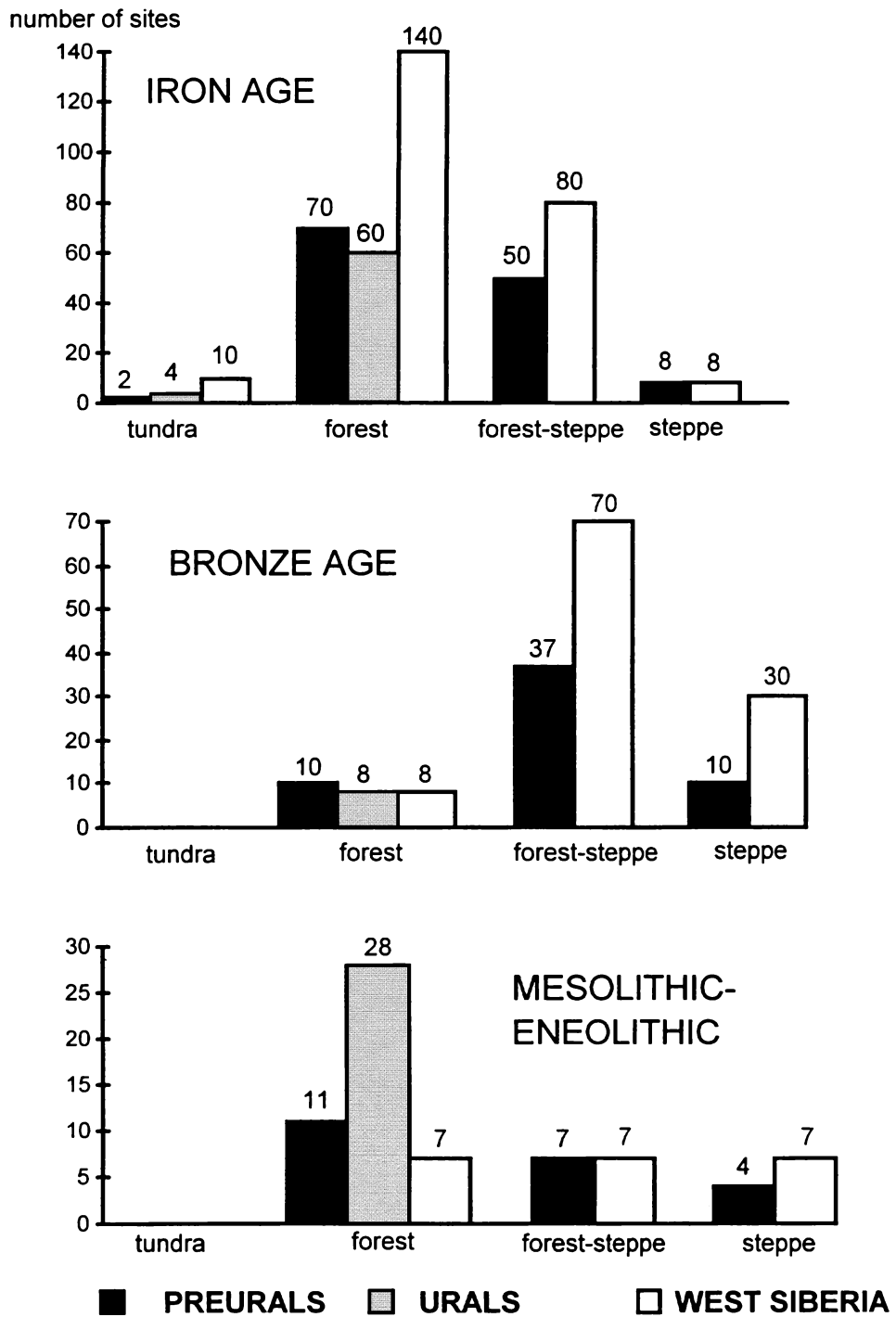


Figure 4: Division of sites (all types) according to natural zones and time periods. Iron Age: 7th century BC - 16th century AD, Bronze Age: 19th - 8th century BC, Mesolithic - Eneolithic: 8th - 3rd millennium BC.

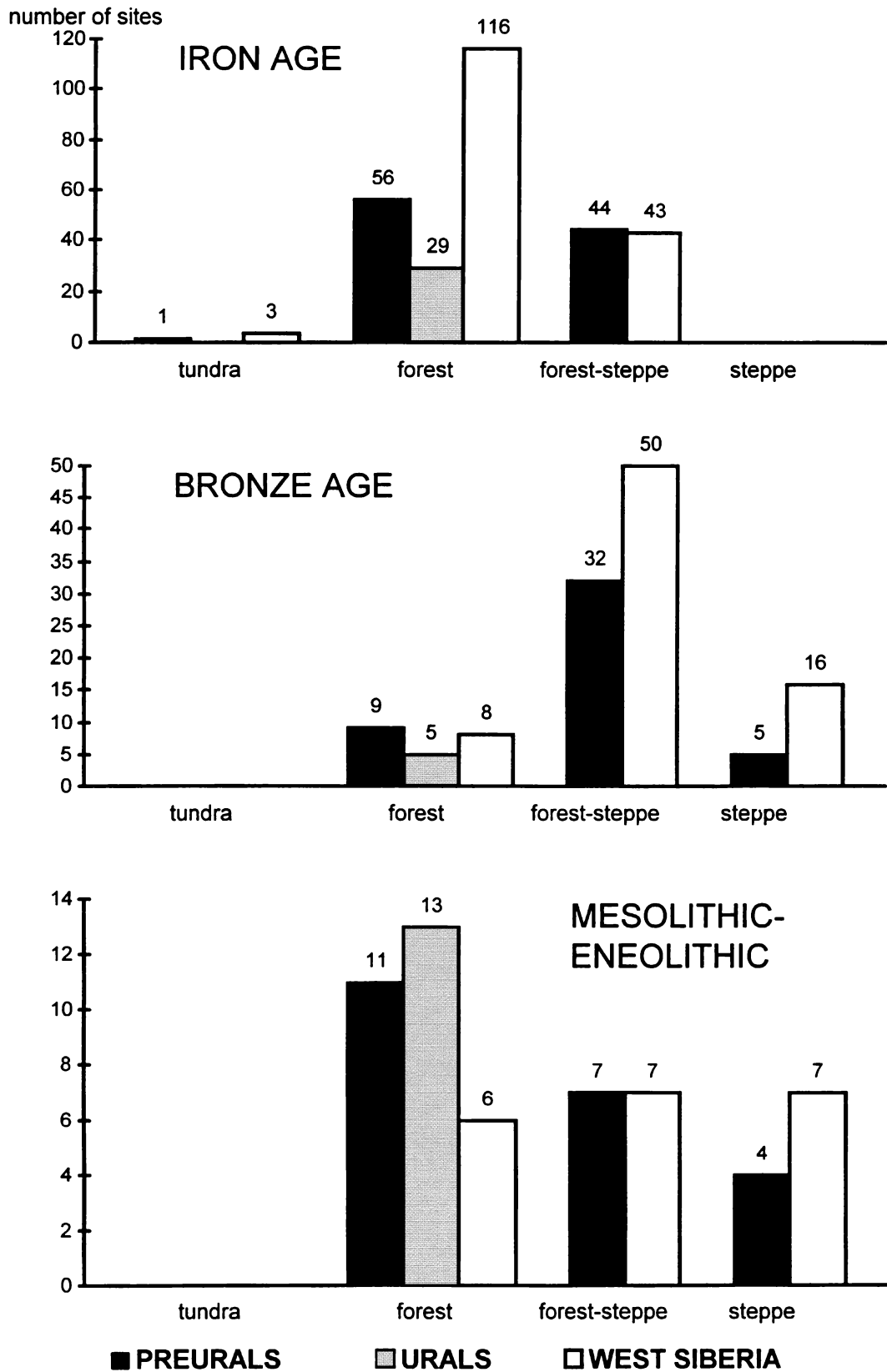


Figure 5: Division of settlements according to natural zones and time periods. Iron Age: 7th century BC - 16th century AD, Bronze Age: 19th - 8th century BC, Mesolithic - Eneolithic: 8th - 3rd millennium BC.



Figure 6: Division of burial sites according to natural zones and time periods. Iron Age: 7th century BC - 16th century AD, Bronze Age: 19th - 8th century BC.

There are two alluvial sites, four lake and bog sites, three zoogenic deposits on open places and two burrows. 27 zoogenic deposits in grottos were found from the Polar to the South Urals, mainly in the Middle Urals. The total size of the faunal assemblages varies from several dozens to several thousands of specimens, usually about several hundred. All the grottos revealed deposits of the Sub-Atlantic, 12 cavities contained the layers of the Sub-Boreal, eight those of the Boreal and Pre-Boreal periods, but neither deposit of the Atlantic was fixed. Mainly in the Middle Urals, there were 17 camp-sites in grottos, usually including several layers with artifacts. 13 sites of this group contained from 100 to 300

bone remains, and three localities provided about a thousand bones. 12 camp-sites were dated to the Sub-Atlantic, seven to the Sub-Boreal, five were assigned to the Pre-Boreal and Boreal, but not a single one to the Atlantic period.

Sanctuaries were found in 12 grottos, all in the North and Middle Urals. Ten of them contained 100-500 bone remains, while in two grottos bone numbers exceeded 2000. All these sanctuaries were dated to the Sub-Atlantic. 25 sanctuaries were found at open places, practically all of them in the taiga zone of the Trans-Urals, Urals, and West Siberia. They were dated to the Sub-Atlantic. Two sanctuaries studied are situated in the West Siberia forest-steppe zone.

They were dated to the Eneolithic. 17 sanctuaries yielded some 100-500 bone remains, two such sites provided about 1000 specimens; in 5 localities the number of bones came to several thousand, and one sanctuary contained ca. 80,000 bones.

Settlements and camp-sites comprise the most numerous type of locality. The faunal assemblages of these sites represent typical kitchen waste. There are only few sites dated to the Pre-Boreal, Boreal, Atlantic, and the first half of the Sub-Boreal, i.e. to the Mesolithic, Neolithic and Eneolithic periods. The number of bones in these sites varies from several specimens up to 1000-2000, mainly 1-500 bones, but one locality provided several hundred thousand specimens. The sites are situated mainly in the forest and forest-steppe zones. Settlements of the Bronze Age are dated to the second half of the Sub-Boreal, i.e. from the beginning of the second millennium BC to the end of the 8th century BC. The number of bone remains comprised several specimens to 10,000 bones, and one site even supplied ca. 1,000,000 bone remains. These localities lie in the forest and steppe zones, but the majority of them in the forest-steppe zone. Settlements of the early Iron Age and the Middle Ages correspond to the Sub-Atlantic period, i.e. from the 7th century BC to the 15th - 16th centuries AD. The amount of bones in them numbered several specimens to several thousands, usually 1-500 bones. The settlements of this period are situated in the tundra, and right down to the forest-steppes, and one site in the steppe zone.

Burials with sacrificed animals were dated from the Eneolithic to the Middle Ages. However, only five burials were older than the Bronze Age. Practically all Bronze Age sites are situated in the forest-steppe and steppe zones of West Siberia. The number of sacrificial animals per burial here varied from one to several dozens, with an average of about 10 individuals. In the Pre-Urals, the number of bones in burials was very low, usually causing several remains to be designated to one or two animals. Burials of the early Iron Age and the Middle Ages are known from the forest, forest-steppe and steppe zones of the whole territory discussed. In the forest-steppe and steppe burials, the remains of one to ten animals were found, usually of two or three individuals; only some sites showed up to several dozens of them. The forest zone burials usually revealed only a few bones from one to three animals. Practically all burials of the forest-steppe and steppe zones were mounds, and near-

ly all contained bones of species living in burrows (foxes, badgers, marmots, susliks) that died in these places. Thus, these sites were referred to as of the mixed taphonomic type.

One can see from the tables and figures presented here (*Table 1-2, Figure 1-6*), that the Holocene sites which have provided bone remains of megamammals are irregularly distributed by both territory and time period. This can be explained by two reasons. First of all, there are regional differences in the current state of archaeological research with especially the tundra zone and some parts of the taiga being insufficiently studied so far. The early Holocene is poorly represented in the available faunal record from the whole territory considered here. Secondly, the irregular distribution of faunal assemblages may be due to the natural and climatic conditions of some regions and time periods. Thus, the rock-shelters of the Urals did not reveal sediments from the Atlantic period, whether or not formed or not preserved. In the forest zone bones might be not have been preserved, for example, due to high acidity of the soil.

## ACKNOWLEDGMENTS

The authors would like to express their gratitude to all archaeologists of the Urals and West Siberia, who worked hard in order to collect the major part of the bone remains, which made the basis for the present report. The study was supported by RFBR grant N 97-04-49154.

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