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Mass accumulations of mammoth (mammoth ‘graveyards’) with indications of past human activity in the northern Yana-Indighirka lowland, Arctic Siberia

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ABSTRACT

In recent years, new accumulations of mammoth faunal remains have been discovered in the northern part of the Yana-Indighirka lowland. Such areas are referred to as “mammoth graveyards” since the discovery of the Berelekh complex of geoarchaeological locales. It’s been determined that all of these locales contain various amounts of evidence of past human activity associated with the use of bone accumulations as a valuable raw material source (mammoth ivory). These locales indicate that humans were widely spread in Arctic Siberia during the Late Pleistocene (MIS 3 and 2). At least some of these sites could have formed as a result of ancient people hunting mammoths. In this article we discuss two newly discovered sites, which currently represent the northernmost evidence of human presence in the Arctic at the end of the Pleistocene. They were found in the Maksunuokha River valley, to the south of the Shirokostan Peninsula. The Urez-22 site (MKR/U22) is located at 71°42' N and is currently the northernmost Paleolithic site in the world. The Lake Nikita site (NKL) is situated 40 km away from Urez-22, and both sites contain numerous remains of mammoth. The NKL site material represents the earlier of the two ancient human habitation episodes. This site’s age is estimated at ~13,800 to 13,600 years ago. The NKL site is a complete chronological and cultural “duplicate” of the Berelekh site, which points to a relatively wide spread of this culture in Northeast Asia. New World implements, similar to those found at the Berelekh site and NKL, are known as the Chindadn points. At this point, they represent the only tangible evidence of the cultural connection between the materials from Northeast Asia and Northwest North America. The age of Urez-22 can be estimated at the time slice of ~14,900 to 13,900 years ago. Archaeological material was encountered in redeposited concentrations, created by a low-energy stream. Artifacts from Urez-22 demonstrate the spread of microblade industry, older than the early Holocene, for the first time in the Siberian Arctic. This new material indicates noticeable cultural originality of the region during the Late Paleolithic and promises success in the future search for Paleolithic sites in the Yana-Indighirka lowland.

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1. Introduction

The association between mass accumulations of mammoth (mammoth “graveyards”) and remnants of human activities (archaeological “sites”) is scientifically widely known. Decades ago, Vereschagin (1977) wrote about this association, while analyzing

the Berelekh bonebed in the northern Yana-Indighirka lowland. Recently, this topic was addressed several times by Anikovich (Anikovich et al., 2010), Pavlov (Pavlov, 2008), and Chubur (Chubur, 1998) in the context of Upper Paleolithic studies in the Russian Plain, as well as by others who study the Upper Paleolithic in Central and Eastern Europe (e.g., Soffer, 2003; Maschenko et al., 2005; Svoboda et al., 2005; Maschenko, 2009; Iakovleva et al., 2012) and in Urals (e.g., Svendsen et al., 2010; Chlachula and Serikov, 2011). While Pavlov (2008) distinguishes “archaeological sites on graveyards” as a typical North Eurasian Upper Paleolithic site, Chubur (1998) includes in this category almost any site

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containing mammoth faunal remains. This is certainly an extreme; however, the connection between mass accumulations of mammoth and evidence of human activity is beyond doubt, and in some cases manifested in locations called “archaeological site” by tradition.

Within site complexes, mass accumulations of mammoth play an important role. In certain cases, the presence of dwelling structures made using mammoth bone is discussed, though supported by a varying degree of scientific evidence. Interestingly, the taphonomy of such accumulations often indicates that the mammoth bones were resting in shallow slow-moving waters, as noted, in particular, for Moravian sites (Soffer, 1993, 2003), at Gontsy (Iakovleva et al., 2012), and at the Yana site (Basilyan et al., 2011). Regarding the Yana mass accumulation of mammoth (YMAM hereafter), this is the only such site with a well-evidenced human origin, for which systematic mammoth hunting by humans has been demonstrated (Nikolskiy and Pitulko, 2013). Presumably, formation of similar concentrations of mammoth remains was caused by the same kind of human activity in Moravia (Brugère and Fontana, 2009; Brugère, 2014).

At the same time, the mass accumulations of mammoth could be of various natural origins, most often alluvial, including Berelekh (Vereschagin, 1977; Nikolskiy et al., 2010; Pitulko, 2011a; Pitulko et al., 2014a), Sevsk (Maschenko et al., 2005) and Gari (Serikov, 2007). In West Siberia, localities with exposed saline soils, or solonetz, including Shestakovo (Derevianko et al., 2003), Volchya Griva (Zenin, 2002) and Lugovskoye (Leshchinskiy, 2006; Zenin et al., 2006) concentrations of mammoth bones are also believed to be of primary natural origin, resulting from multiple natural death of animals as shown by Leshchinskiy (2006, 2015).

Typically, these localities have long accumulation histories and occupy relatively wide spaces while a concentration of bones is not really high if compared to alluvial and/or human-caused accumulations. At such locations, the evidence for human contribution into their formation varies. Sometimes it is clearly expressed by specialized lithic inventory, as at Shestakovo (Derevianko et al., 2003) or Shlyonka (Lisitsyn, 2000). In other cases it can be quite modest (Berelekh, Volchya Griva, Lugovskoye), and even almost ephemeral counting to very few lithic items, as for example, at the Achchaghyi-Allaikha accumulation of mammoth (Pitulko, 2011b) or at the localities recently found at Ilin-Syalakh river (Pitulko, 2012; Pitulko et al., 2013a) where lithic implements count to zero while human involvement into formation of these accumulations is clear. Thus, human exploitation of the mass accumulations of mammoth does not necessarily leave noticeable traces.

Since the discovery of the Berelekh “site” near the Berelekh graveyard (Vereschagin and Mochanov, 1972), this complex remained a unique find. In 2000, we began a survey aimed at Stone Age sites in the Yana-Indighirka lowlands and the New Siberian Islands as part of the Zhokhov-2000 research project. This fieldwork resulted in the discovery of the Yana site (Pitulko et al., 2004, 2013) and the associated YMAM mammoth site (Basilyan et al., 2011; Pitulko et al., 2015) and included research at the Berelekh complex (Pitulko et al., 2014a). In addition, new mammoth bone concentrations, associated with human activity, were located on the Buor-Khaya Peninsula (Pitulko et al., 2014c), and between the Yana and Indighirka rivers (Pitulko et al., 2013a), in the west part of this interfluvial near the Shirokostan Peninsula (Pitulko et al., 2014b). These newly discovered sites (Fig. 1) are under discussion in this article.

For many years, this area produced numerous paleontological finds. Thus, several animal carcasses, mostly mammoth, were found in this region over the last few decades, predominantly in the Maksunuokha river valley. In total, nine carcasses of various geological ages were discovered (Lazarev, 2008), including the Sanga-Yuryakh mammoth, studied by Vollosovich (1909).

For the most part, these finds date to the Karginsk Interstadial (MIS 3), but a few rare ones belong to Sartan Stadial (MIS 2), for example, the Yukaghir mammoth (Boeskorov et al., 2007). They include the Maksunuokha mammoth (Lazarev and Repin, 2003), excavated in 2002 from the locality now recognized as the archaeological Nikita Lake site (Pitulko et al., 2013b).

Such a high concentration of Pleistocene animal carcasses is most likely explained not by some past or present characteristic of the region or specific taphonomic conditions, but rather the constant monitoring of the area by the local residents as they search for and mine mammoth tusks. On the other hand, our fieldwork shows that Pleistocene fauna is quite rare outside the river valleys, despite decent exposure, which indicates that the sediments outside the river valleys lack faunal remains.

2. Archaeology at Nikita Lake Site

Nikita Lake site (NKL) is located 400 m northwest of the northern shore of Nikita Lake on the right bank of the Maksunuokha River (Fig. 1), 71°34'56.5"N; 141°37'03.5"E (Pitulko et al., 2013a). Archaeological material was first reported by Igor Sleptsov, one of the locals involved in mammoth ivory mining, who visited the place in 2011 and collected several lithic artefacts.

The Maksunuokha River meanders greatly in its upper part and follows a rather deep V-shaped valley, which indicates the presence of an impermeable horizon and the fast recent cutting. This is a quiet grassy river with a slow stream and a ditch-like channel. Often, at the tops of meanders there are troughs, formed by short temporary streams, whose naturally exposed banks display alluvial deposits, with a stable depth of occurrence. Such a trough separates the NKL site into the northern and southern parts (Fig. 2).

The discovery of a relatively complete mammoth skeleton in the Maksuokha River uplands near Nikita Lake was known as early as late 1990s. In 2002, it was excavated by the expedition, whose members also noted that there are numerous faunal remains of mammoth, bison, and horse by the slope of the bank. With respect to the mammoths, the faunal remains represent at least five individuals (Lazarev and Repin, 2003). The Maksunuokha mammoth (partial skeleton) was, according to the published data, unearthed from the southern part of the accumulation.

Afterwards, the location was significantly damaged by the ivory mining activities: it has been almost entirely destroyed by the washing out of sediments, performed by local residents mainly in 2011–2013. Near the washouts in both the northern and southern parts, bones of mammoths and other animals are common on the surface (Table 1). The bones are the result of a specifically organized selective process: mammoth foot bones are almost non-existent, ribs are very rare, and the majority of elements are large (long and flat) bones and their fragments, including numerous chips of ivory. Thus, the selection shows signs of preliminary sorting, reminiscent of the pattern discovered in the mammoth faunal collection of the YMAM site (Basilyan et al., 2011).

Table 1
Species composition found for fauna remains collected at Nikita Lake site in 2013.

Species (common name)	N	MNI
Brown bear	1	1
Wolf	5	≥1*
Wolverine	1	1
Mammoth	133**	≥10
Pleistocene bison	1	1
Pleistocene horse	3	≥1
Reindeer	5	≥1
Birds	1	1

N* – number of individuals, NLE** – including human-made ivory flakes.

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