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## **ABSTRACT BOOK**

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## Mammoth «Graveyards» of the Northern Yana-Indighirka Lowland, Arctic Siberia

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Since the discovery of the Berelekh archaeological site next to the Berelekh mass accumulation of mammoths (Vereschagin, Mochanov, 1972), this geoarchaeological complex remained unique in Arctic Siberia. Since 2000, systematic survey aimed at Pleistocene cultural remains began north of the Yana-Indighirka lowland as part of the Zhokhov-2000 research project. During the explorations in the Yana-Indighirka interfluvium, discovery of pre-LGM Yana RHS site (Pitulko et al., 2004) was followed by finding the Yana mass accumulation of mammoths, or YMAM (Basilyan et al., 2011), and by the reevaluation of Achchaghyi-Allaikha (Nikolskiy et al., 2010) and Berelekh accumulations of mammoths (Pitulko et al. 2014). Additionally, several new mammoth sites were discovered in 2011-2013. It has to be stressed that all of them became known after the perennially frozen deposits were destroyed by local residents' power-washing efforts during illegal ivory mining.

Nikita site (NKL, N 71° 34', E 141° 37'), located on the right bank of Maksunuokha River, represents a secondary context formed by a low-energy stream. Mammoth bones are associated with those of other herbivore (bison, horse, reindeer) and carnivore species (wolf, wolverine, brown bear). There are at least 11 mammoth individuals, mostly adults and a few juveniles. Several mammoth ribs display unequivocal butchering marks and some have clear hunting lesions (embedded lithic tool fragments). Radiocarbon dating allowed estimated the assemblage age at 12,000 BP (12,050 ± 50 BP, Beta-309157 and 11,960 ± 140 BP, LE-9493). Artifacts are very few but characteristic: they include ivory debitage and spear point preforms and formal lithic artifacts - tear-drop bifaces identical to the Berelekh specimens (Pitulko et al., 2014) known in NW North America as Chindadn points. NKL site fully replicates the Berelekh complex in geology, age, and bone/artifact association as well.

Another locality found in the Maksunuokha River, MKR/UR-22, sits slightly north of NKL site (N 71° 42', E 141° 12'). Bones and artifacts are found within the deluvial-proluvial deposits backfilling the erosion channel made by a small stream. The site yielded ivory debitage, a spear point blank, and several stone flakes that indicate rejuvenation of lithic tools and possibly microblade core maintenance, but no tool production. Regular knapping is presented by true microblades while core technology is not recognizable. Bone remains collected at the site suggest that at least 12 mammoth individuals, both juveniles and adults, were killed (?) here around 12,370 ± 50 BP (Beta-362950).

Ilin-Syalakh River in the Yana-Indighirka interfluvium produced two more sites. This first, Ilin-Syalakh «mammoth graveyard», or the ISYLAKH site, is located at N 70° 47' and E 140° 45'. The bone bed, belonging to the base part of the river terrace, yielded a set of almost exclusively mammoth bones (presumably about ten mid-sized animals are represented, indicating prey selection by size). Other species (woolly rhinoceros, reindeer, horse, bison, hare, and birds) are also present. According to 14C dating of mammoth bones (12,260 ± 220 BP, LE-9507 and 12,300 ± 85 BP, LE-9494), the bone material of the bone bed was accumulating from before 12,000 BP. The accumulation mechanism is similar to that of the Berelekh (Pitulko et al. 2014). Past human activity is indicated by a distinctive

ivory artifact - a 27 cm long three-edged preform for a thrusting spear, typical for many Siberian sites.

The other small concentration of bones, called ISYLAKH-034 site, was found 3 km downstream from the «graveyard» on the right river bank. Although there were about 15 specimens found in the narrow spot (7-8 m wide), Pleistocene fauna is represented widely at this site: the concentration includes mammoth, bison, horse, reindeer and elk bones. There are rib and vertebra fragments, and limb bones. Bone-bearing horizon produced a mammoth mandible (22,700 ± 300 BP, LE 9506), mammoth ribs with clear human impact (hunting lesions or butchering marks?), and elk antler fragments. This site perhaps starts closing the «LGM gap» in the human habitation record in NE Asia.

There are no lithics associated with these finds; however, the lack of lithics may be explained by the shortage of high quality lithic raw material in this region. Thus, human exploitation of bone beds does not necessarily leave supplementary evidence, even when human involvement in the bone bed formation and human use of mammoth bones is indisputable.

Interestingly, many of mammoth bone beds found in northern Yana-Indighirka lowland (Achchaghyi-Allaikha, Berelekh, Ilin-Syalakh, Nikita, and MKR/UR22) are roughly simultaneous, forming between 12,600 – 11,900 BP, contemporary to Bølling and then to Allerød warming (Nikolskiy et al., 2010; Pitulko et al. 2014). Bone remains in all of them are almost 100% mammoth, and often represent a small group (family group?). In general, the last peak of mammoth population in Arctic Siberia corresponds to this time, predating the animal's final decline, in which humans have certainly played a role (Nikolskiy et al., 2010) since they had inhabited the area widely. Finally, we have to mention that there are strong indications for presence of Late Pleistocene human populations further north, including New Siberia, Zhokhov, and, possibly, Kotelný island.

### References

- Basilyan, A.E., Anisimov, M.A., Nikolskiy, P.A., Pitulko, V.V., 2011. Woolly mammoth mass accumulation next to the Paleolithic Yana RHS site, Arctic Siberia: its geology, age, and relation to past human activity. *Journal of Archaeological Science* 38, 2461-2474.
- Nikolskiy, P.A., Basilyan, A.E., Sulerzhitsky, L.D., Pitulko, V.V., 2010. Prelude to the Extinction: Revision of the Achchaghyi-Allaikha and Berelekh mass accumulations of mammoth. *Quaternary International* 219, 16-25.
- Nikolskiy, P.A., Sulerzhitsky, L.D., Pitulko, V.V., 2011. Last straw versus Blitzkrieg overkill: Climate-driven changes in the Arctic Siberia mammoth population and the Late Pleistocene extinction problem. *Quaternary Science Reviews* 30, 2309-2328.
- Pitulko, V.V., Basilyan, A.E., Pavlova, E.Y., 2014. The Berelekh Mammoth Graveyard: New Chronological and Stratigraphical Data from the 2009 field season. *Geoarchaeology*, Accepted ms.
- Pitulko, V.V., Nikolskiy, P.A., Girya, E.Y., Basilyan, A.E., Tumskey, V.E., Koulakov, S.A., Astakhov, S.N., Pavlova, E.Y., Anisimov, M.A., 2004. The Yana RHS Site: Humans in the Arctic before the Last Glaciation. *Science* 303, 52-56.
- Vereschagin, N.K., Mochanov, Y.A., 1972. The world northernmost traces of the Upper Paleolithic. *Soviet Archaeology* 3, 332-336.

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