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## **ABSTRACT BOOK**

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## Eight thousand of horses' bones and none of woolly mammoth!

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Accumulation of horse's bones was found in 2004 at the right bank of Tikhaya Sosna River, a right tributary of the Don River (Voronezh Region, south part of European Russia), at 50.9649°N, 39.3031°E (Fig. 1A). Now this location is known as the Upper Paleolithic archaeological site Divnogorie-9, placed at the bottom of a deep Pleistocene gully (Bessudnov and Bessudnov, 2010). Bones lie within the Late Pleniglacial gully alluvium that was cut during the gully activity phase in the Late Glacial and now form the right side of the younger generation of the gully. The site has been excavated during the last six years. Investigated area is more than 180 m<sup>2</sup>. The archaeological pit exposed the 18-m thick geological section composed of three major units (from base to top): gravelly-silty colluvium, stony alluvium, and gravelly-silty colluviums again. Seven levels of horse's bones were identified within the alluvial and the very base of the upper colluvial part of the section (Fig. 1B). Archaeozoological collection includes near 8000 bones of *Equus caballus* and two bones of wolverine and polar fox.

Almost complete horse skeletons were found within two levels (level 5 and level 6) (Bessudnov and Bessudnov, 2012) (Fig. 1C). Four other levels include fragments of skeletons and isolated bone material. Horse's remains of different age are recognized: from 1-2 weeks old foals to old mares and stallions. Humane stone artifacts are not numerous (65 units).

Radiocarbon age of the location Divnogorie-9 falls into the period between ~14.5 to ~13 ka BP. Two options try to interpret this absolute chronology. The first is that during ca 1500 <sup>14</sup>C years horses periodically died at this area and their bones deposited very fast. Such a long duration of alluvial accumulation is not evident from the geological properties of the section, which lacks buried soils, thick layers of fines, or other evidences of interruption or slowing down of sedimentation, as well as any traces of considerable erosional removal of sedimentary archives. The alternative is that the wide dating range results from peculiarities in laboratory procedures of contaminant removal, crucial when dating bones greater than 2 to 3 half-lives of <sup>14</sup>C.

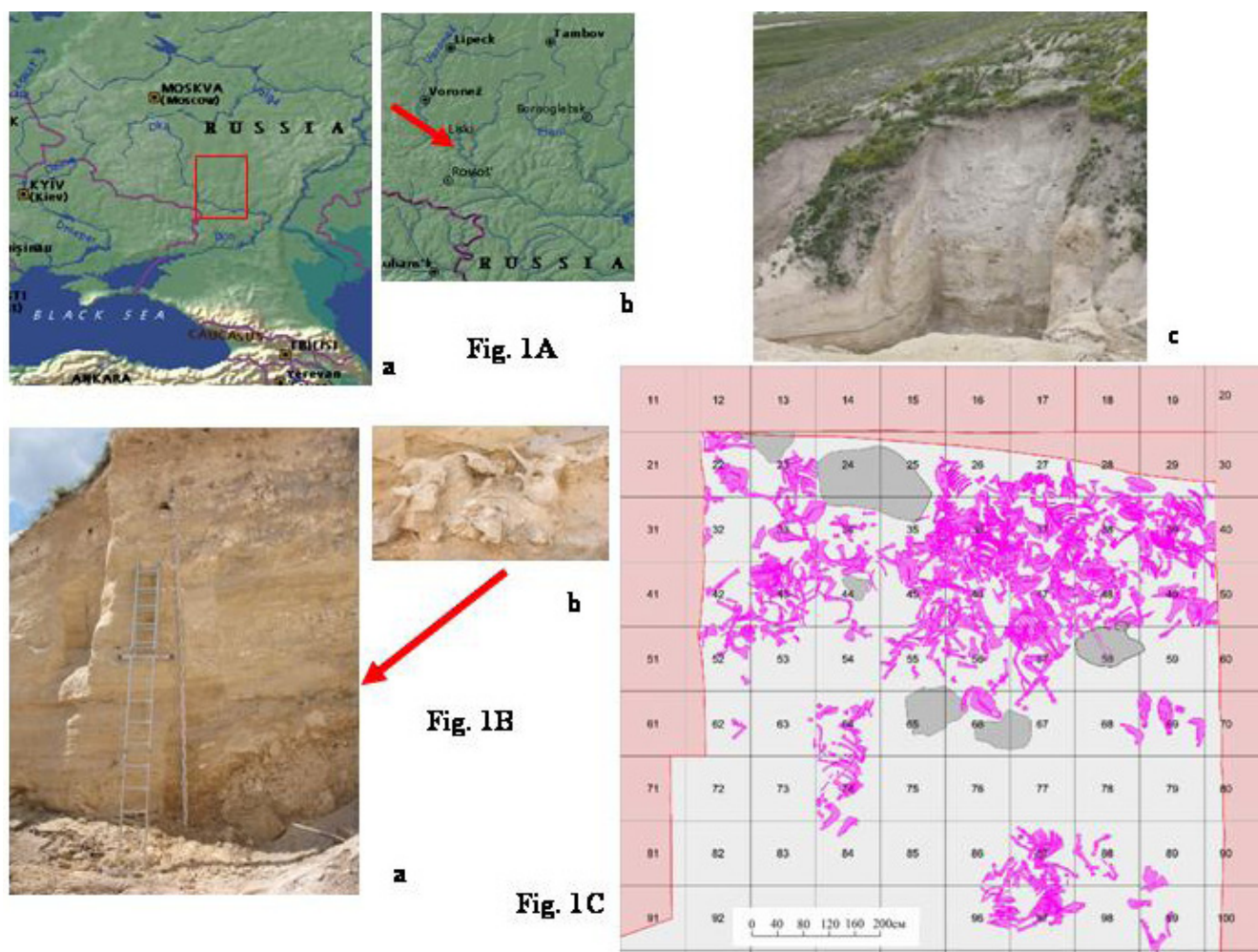


Fig. 1. A, Upper Paleolithic archaeological site Divnogorie-9: location maps (a, b); site area, viewed from the East (c). B, The alluvial and colluvial parts of the section (a); horse's bone level 6 (b). C, Summary plan of *Equus caballus* bones location. Divnogorie – 9, excavation 2009 – 2010 years, level 5 (Bessudnov, 2010).


There are several hypotheses of formation of the location that can be summarized in two main ideas. First, horses died without human intervention and accumulation of bone material was the result of geological processes only. In this case: (1) At this area there was water reservation with boggy lakesides, horses stuck in the mud, died and promptly buried. (2) Horses fell into mud flows and their remains were conserved in alluvial strata together with stones and mud. (3) During winter and spring periods horses died at upper reach of the ravine. Then spring snowmelt flows transported and collected their corpses and bones near the ravine mouth (Bessudnov et al., 2013). These hypotheses are supported by some geological characteristics of the deposits and some archaeozoological conclusions.

The second hypothesis states that horses died and accumulation of their remains has been produced by Paleolithic people, e.i. Divnogorie-9 is a kill site. Horse's bone levels are results of herding hunting. Little number of human artifacts within the levels can be interpreted, as people didn't take part in horses' death. We can't disclaim a role of people in the formation of bone levels of Divnogorie-9. Possibly different levels of bones were formed by different process.

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