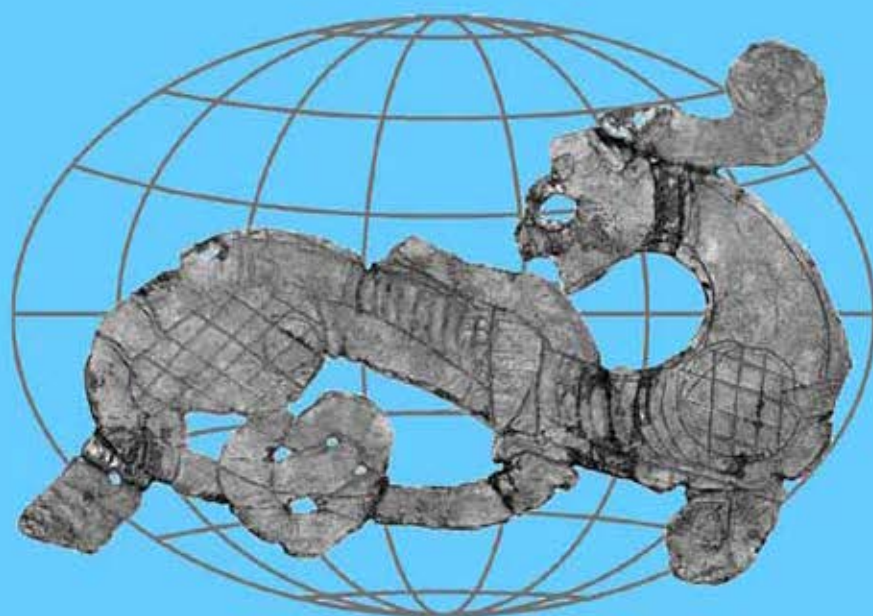# GEOMORPHIC PROCESSES AND GEOARCHAEOLOGY

From Landscape Archaeology to Archaeotourism

International conference
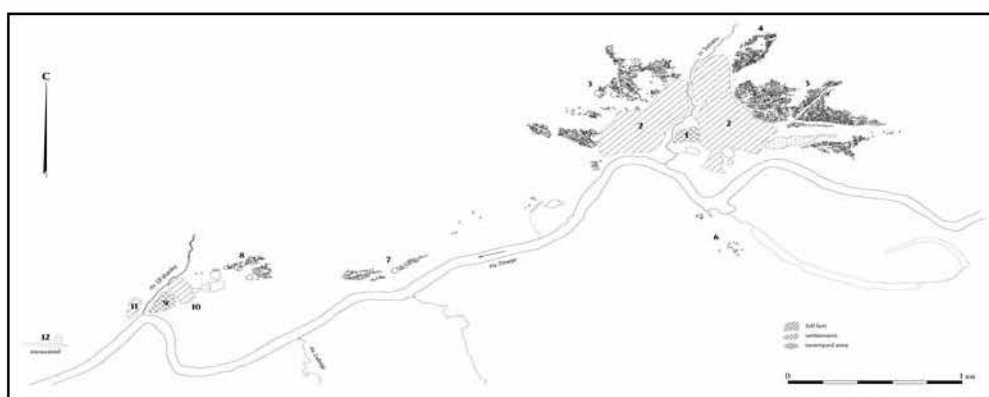August 20-24, 2012
Moscow-Smolensk, Russia

EXTENDED ABSTRACTS

Figure 1. Map of the Gnezdovo archæological complex: 1 – Tsentralnoe gorodishe (Central hill fort), 2 – Tsentralnoe selishe (Central settlement), 3 – Tsentralnaja gruppa (Central mound group), 4 – Glushenkovskja mound group, 5 – Lesnaja mound group, 6 – Levoberezhnaja mound group, 7 – Dneprovskaja mound group, 8 – Ol'shanskaja mound group, 9 – Ol'shanskoe gorodishe (hill fort), 10 – Ol'shanskoe selishe (settlement), 11 – Zaol'shanskoe selishe (settlement), 12 – Zaol'shanskaja mound group

Figure 2. Georeferenced data in a GIS framework: left side – intelligence image from 1970's, right side – contemporary image, color overlay – mound groups

In the past decade the History faculty of the Moscow State University has launched a project which aim was to integrate the total amount of scientific knowledge obtained from 140 years of excavations in a multifunctional computer data system. The data core of the system is operated by GIS engine which enables the spatial potential of

archaeological data. The multilayer cartography framework of Gnezdovo GIS includes a broad scope of topographic, cartography and remote sensing data: archive maps of the region dating from 1730's, historical topographic maps of the 19th century, large-scaled topographic map from 1 : 50000 to 1 : 500 produced during 20th century, archaeological plans of the complex beginning from the very end of the 19th century. A scope of remote sensing data covers intelligence photos of WW2 and 1970's as well as current high resolution satellite imagery.

Within GIS cartographic spatial data was georeferenced to a sole global coordinate system giving a versatile view on the Gnezdovo archaeological complex through temporal and anthropological change. Integration of the geodata multiplied its potential through spatial analysis algorithms applied to a variety of issues of landscape and structure specific patterns of the site (fig. 2).

Among those is the structure and interrelation between mound groups of the Gnezdovo archaeological complex. The structure of the Gnezdovo necropolis shows two distinct patterns – dense circular allocation of mounds around the settlement core of the complex and separated linear concentrations following the Dnepr flow as a baseline. Both patterns are relief relevant tending to keep an 8-10 meter minimum height gap from the water level of the Dnepr River (in its current summer flow state). The disposition of mounds avoids river floodplain and any lowlands, e.g. swamped areas. In the height critical peripheral zones of the necropolis the density of mounds seem to arise, which confirms the notion of Gnezdovo inhabitants to isolate their graves from the flood (fig. 3).
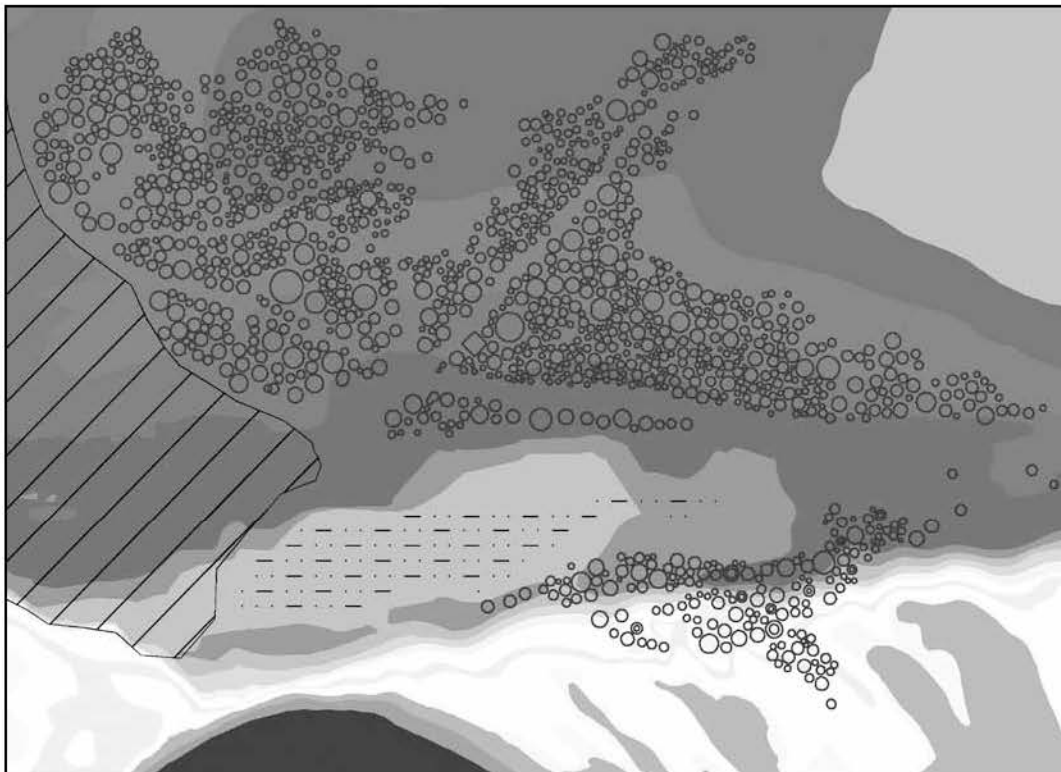

Figure 3. Eastern part of the central Gnezdovo necropolis (pattern 1) overlaid on the elevation banded map

Meanwhile in terms of isolation the circular pattern of the major part of the necropolis forms a distinct landscape barrier cutting off the settlement from the outer land. Its horseshow structure encloses the settlement from the west, north and east, while the Dnepr River provides a natural frontier from the south.

The analysis of the internal allocation of mounds within the mound belt revealed intentional gaps between mounds not related to later damage or anthropological change of the necropolis. These linear gaps most likely to be interpreted as ancient paths and roads concurrent to the Gnezdovo site.

The second allocation pattern of the Gnezdovo mounds demonstrates prominent semantic relation to the Dnepr flow, with a riverbed forming a baseline of the pattern. Mounds are grouped on the top of elevated floodplain ridges, majorly tending to their ends facing the main stream of the river (fig. 4). As opposed to the primary allocation pattern of the Gnezdovo mounds related to the settlement these mounds show no connection with inhabited areas. Such type of mound allocation forms a system of landscape marks emphasizing the role of river in the society of Gnezdovo population.
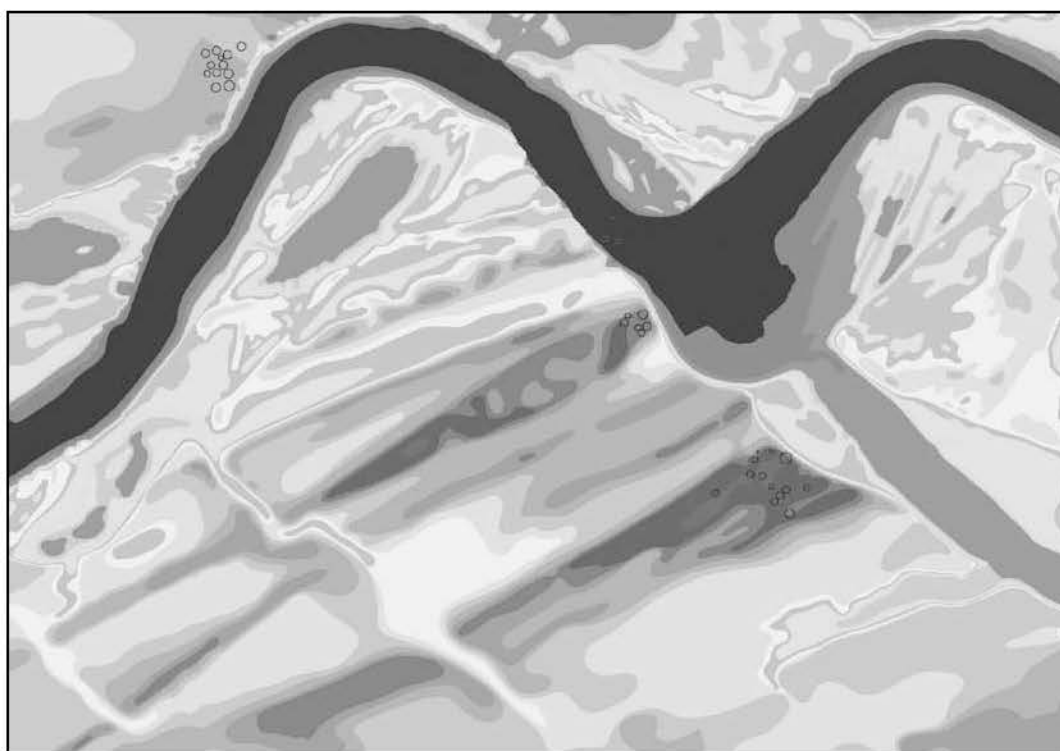

Figure 4. Mounds on the left bank of the Dnepr River demonstrating the second type of landscape allocation

References

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2. *Zhukovskiy, M.O.* 2011. Izuchenie topographii, struktury i landshaftnogo zonirovanija Gnezdovskogo kompleksa arheologicheskih pamjatnikov s ispolzovaniem GIS-tehnologij. Trudy III (XIX) Arheologicheskogo sjezda. Velikij Novgorod – Staraja Russa. Vol. 2, P. 379-381 (in Russian).

HORSE BURIALS IN BALTIC REGION:
POTENTIALS FOR ARCHAEOTOURISM

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Archaeotourism as a form of cultural tourism becomes increasingly popular in recent years. Aimed to promote the public interest in archaeology and conservation of historical sites, it is often associated with concrete archaeological sites and objects of particular historical importance. Horse burials are among such objects in the continuous area of the Baltic region. They made their appearance in the period of Roman influence (2nd-4th centuries AD) [1-3]. Numerous works on horse burials, connected rituals and horse physical appearance exist for the area of Baltic tribes and adjacent territories (for the literature review see [4]). This makes the coherent grouping of cultic equestrian burials possible, despite the complex history of the region. Reconstructed in timely evolution in relation to the ethnic and social history horse burials constitute important objects of cultural heritage in Baltic region.
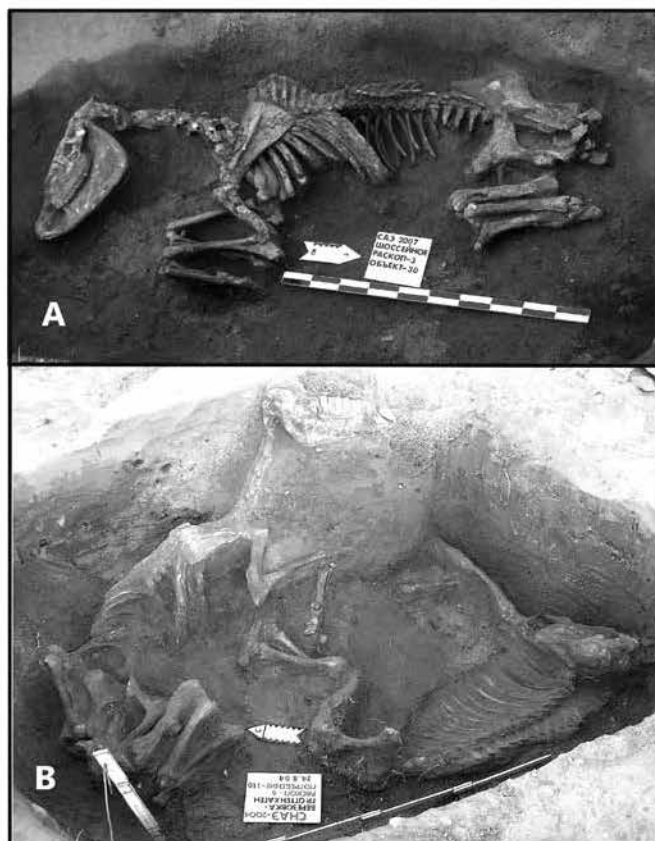

Figure 1. Single and double horse burials. 2nd century AD: A — Schosseinyi (Dorf Warten Kreis Königsberg); B — Berezovka (Groß Ottenhagen). Photos courtesy K. Skvortsov

Whole horse burials are among the most attractive and frequent types of horse burials. Single (fig. 1A), less frequently two (fig. 1B) and rarely three horses are buried in a tight pit to the west from the human inhumation or on the bottom of it [3, 4]. Bridle bits often associated with skeletons as well as the absence of mutilation traces suggest the practice of burying horses alive. The tightness of the pit, when horse (horses) were forced there with legs flexed under the stomach, has made the escape of still living animal impossible. Literature sources can be added as an entertaining supplement to the illustration of this ritual. Vulfstan's stories in King Alfred's edition of Orosius' History of the World (9th century) and even later works (13-14 centuries) such as those by von Dusburg record the habit of Prussians and Lithuanians to 'run the horses off their feet to such an extent, that the animals can hardly keep stand'. Then they could be easily stuffed into the pit. The ritual character of such a burial is displayed by a special