

Plan Overview

A Data Management Plan created using DMPTool

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Title: The Role of Horses in the Rise of Social Inequality in Northern Eurasia

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Template: NSF-SBE: Social, Behavioral, Economic Sciences

Project abstract:

The project aims to document alterations in social complexity in northern Eurasia during the Bronze Age (ca. 4200–3000 BP) by exploring the spread and social impact of domestic horses in early steppe pastoral societies with radiocarbon dating of organic materials from graves with horses and two-wheeled chariots, analyzing the osteological and biomolecular analysis of domesticated horses, and use wear analysis of antler and bone-made parts of ancient horse bridles (cheekpieces). Research activities of the proposed project include Bayesian statistical chronological and geographic modeling of samples ($n=104$) from archaeological complexes ($n=47$) with documented cultural horse-related contexts. The further advance in bone pathology studies is needed for distinguishing chariot horses from riding horses, leading to the study of horse skeletal remains from various Bronze Age contexts from the Republic of Kazakhstan ($n \geq 13$). Moreover, use-wear analysis of cheekpieces ($n=34$) will provide a better understanding of the dynamic of horse use by tracing the transition from chariotry to horseback riding and a mass spectrometry study (ZooMS) of sampled cheekpiece specimens ($n=26$) will help to trace the supposed transition from wild to domestic faunal resources to produce them. Finally, horse bone samples will also be submitted for ancient DNA analyses ($n=41$) to determine whether horses from various regions of the Eurasian Steppe can be traced to common ancestry.

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The Role of Horses in the Rise of Social Inequality in Northern Eurasia

The project's radiocarbon and related isotopic data, ZooMS, and paleo-DNA data will be stored online through the Center for Comparative Archaeology at the University of Pittsburgh. Chechushkov will be responsible for preparing the data to be stored at the Comparative Archaeology Database, maintained by the Center for Comparative Archaeology, and submitting the data. Ebert will take over this responsibility should Chechushkov leave the project.

The remaining physical materials will be preserved at the University of Colorado Museum of Natural History for future research. Chechushkov will be responsible for collection transfer to the Museum. Taylor will take over this responsibility should Chechushkov leave the project.

The expected dataset will consist of a set of radiocarbon and stable isotope measurements of samples ($n=104$) from 47 archaeological complexes. ZooMS data identifying the biological origin of bone and antler from which cheekpieces were made ($n=34$) and paleo-DNA data on ancient horses ($n=41$).

The remaining collection of physical materials will consist of 43 animal teeth specimens, 17 bone specimens, and nine human teeth.

The period of data retention is not limited. In addition to online storage, data will be published in scientific journals as supplementary materials to ensure its preservation.

Data will be disseminated as open source under Creative Commons Attribution 4.0 International Public License

The primary cyber resource is the Comparative Archaeology Database, maintained by the Center for Comparative Archaeology at the University of Pittsburgh. The Database publishes primary archaeological data to complement more traditional means of publication. The Database thus works toward the preservation and dissemination of primary data recovered in fieldwork, a fundamental ethical responsibility in archaeology. Beyond serving as a data repository, the Comparative Archaeology Database collaborates with researchers in pursuit of two particular objectives: 1) accessible presentation of comprehensive metadata without which data are uninterpretable and thus useless (see Roche et al. 2015); and 2) exploration of the potential of digital information technology for presenting the multi-faceted data of archaeology in ever more useful ways that are at the same time resistant to software and hardware obsolescence. Both objectives contribute to permanent preservation of irreplaceable primary archaeological data and facilitate the solidly empirical comparative analysis.

Planned Research Outputs

Data paper - "The Role of Horses in the Rise of Social Inequality in Northern Eurasia"

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Planned research output details

Title	Type	Anticipated release date	Initial access level	Intended repository(ies)	Anticipated file size	License	Metadata standard(s)	May contain sensitive data?	May contain PII?
The Role of Horses in the Rise of Social Inequalit ...	Data paper	Unspecified	Open	None specified	10 MB	Creative Commons Attribution 4.0 International	None specified	No	No