

Plant macro-remains from the Bronze Age settlement Kamennyj Ambar in the Transurals (Siberia)

Lisa Rühl, Astrid Stobbe, Arie J. Kalis, Rüdiger Krause

Goethe-University Frankfurt am Main, Institute of Archaeological Sciences, Grüneburgplatz 1, D-60323 Frankfurt am Main

Introduction

Archaeobotanical investigations are an essential part of the DFG-funded project 'Environment, Culture and Society of the Southern Urals in the Bronze Age: A Multidisciplinary Investigation in the Karagajly-Ayat Microregion, Russia'.

This project is a cooperation between the Goethe-University in Frankfurt am Main and the Russian Academy of Sciences, Ural Branch in Ekaterinburg. It includes surveys and excavations in the Bronze Age settlement Kamennyj Ambar (Fig. 2) and its surroundings since 2008. The research area lies in the steppe region to the East of the Southern Ural Mountains, the Transurals (Fig. 1). At the transition from the 3rd to the 2nd millennium BC numerous fortified settlements appear that are related to the Sintašta Culture and associated with Kurgan burials which are equipped with spoke-wheeled chariots and metal objects (Krause et al. 2010: 97-100).

There are many theories and hypotheses about the day-to-day life of the inhabitants of the Bronze Age steppes, reaching from stock breeding to agriculture or a combination of both (Hanks & Doonan 2009: 336-337). However, this is the first systematic and long term investigation of plant macro-remains accompanying an excavation in this area.

The focus of the archaeobotanical analysis is: How was the diet of the residents of Kamennyj Ambar composed? Did they cultivate land?



Fig. 3
Excavation at Kamennyj Ambar, campaign 2010
(Photo: Project-Database).



Fig. 4
Wet-sieving construction at the riverbank of the Karagajly-Ayat
(Photo: Project-Database).

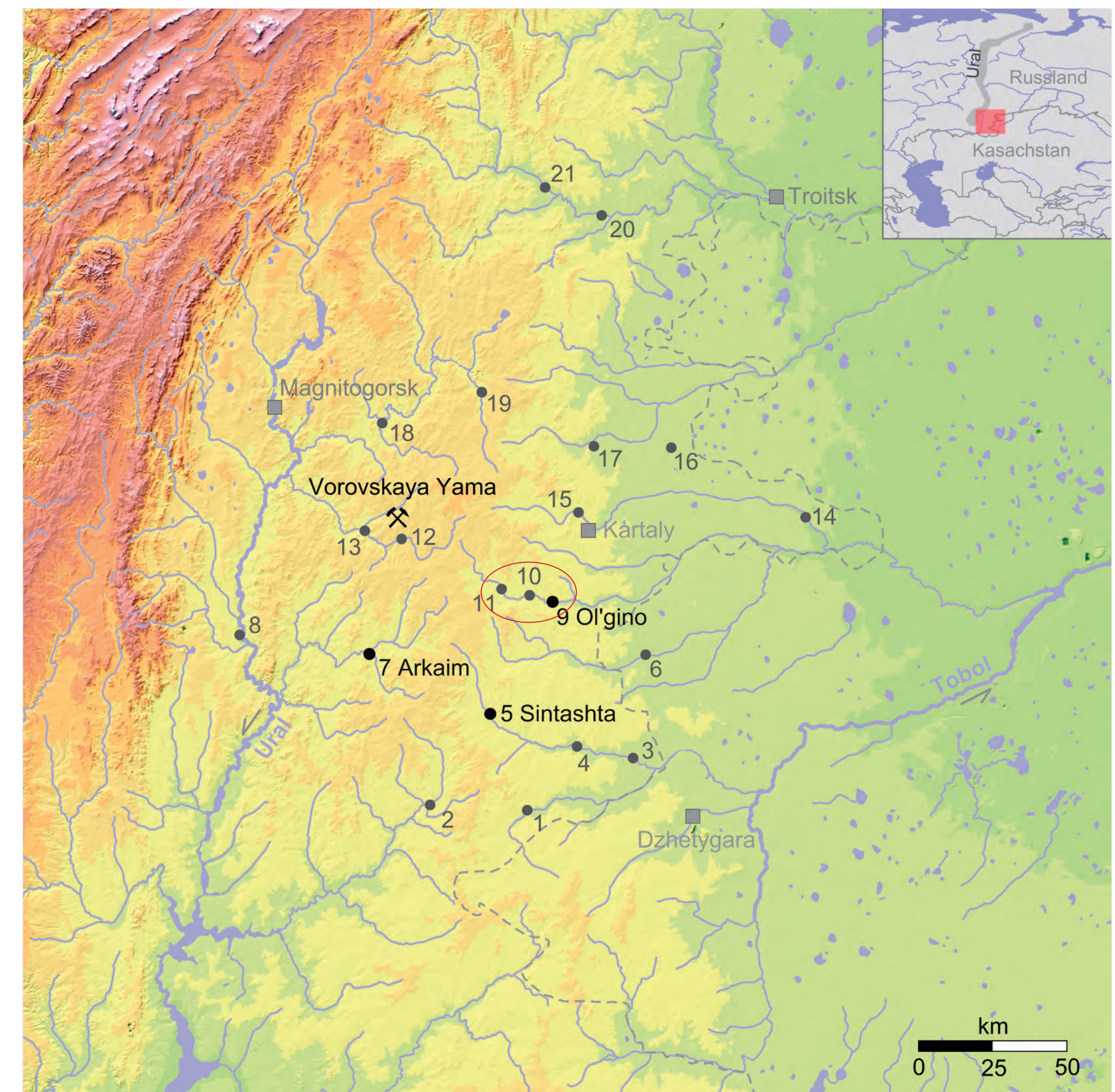


Fig. 1
Location of the research area with Kamennyj Ambar (Ol'gino) and other Bronze Age settlements in the Transurals (Map:Project Database).

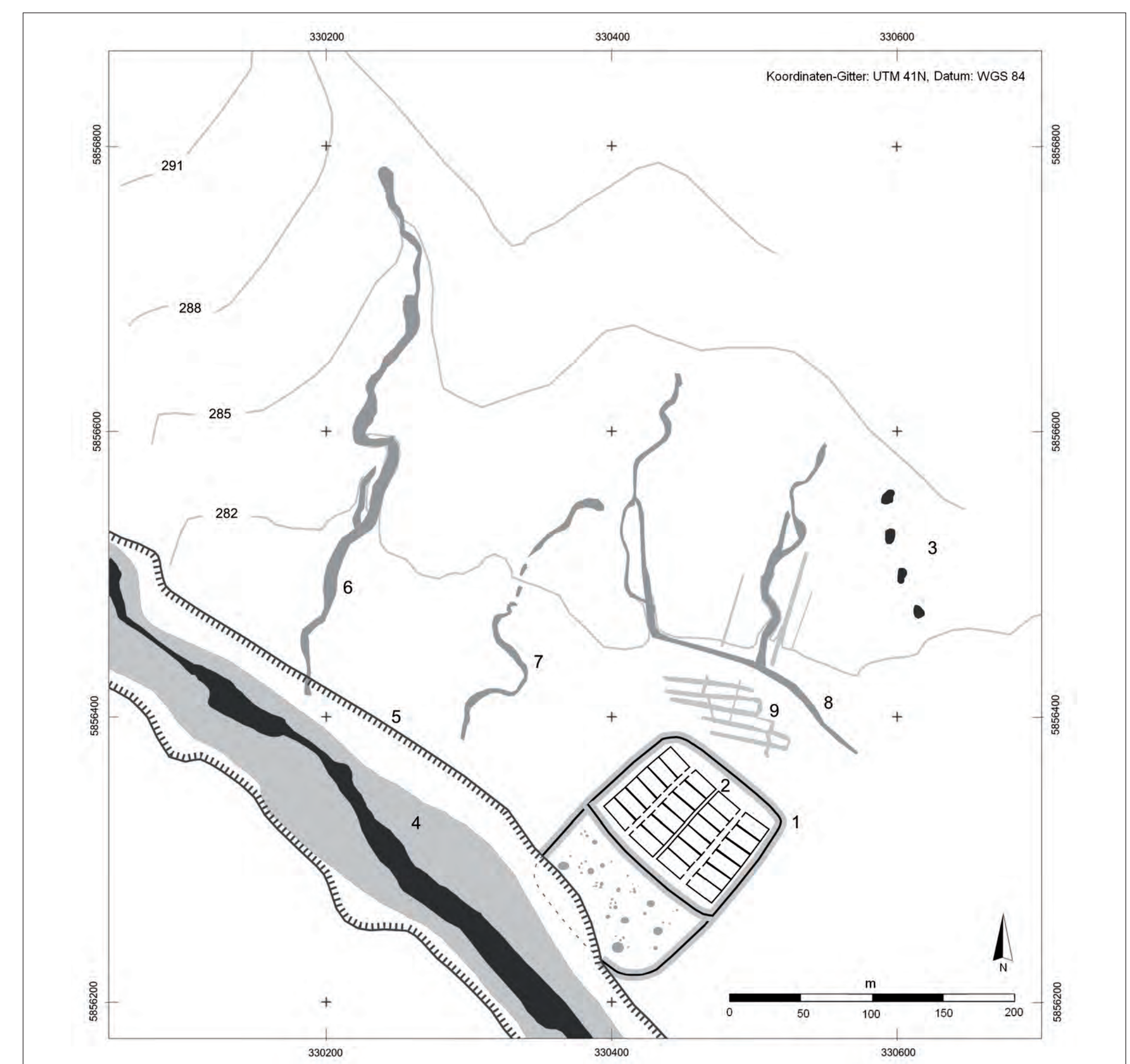


Fig. 2
Schematic map: 1 Fortified settlement, 2 House units, 3 Mine shafts, 4 Flood plain, 5 Lower Terrace border, 6-8 Channels, 9 System of small ditches
(Map: D. Knoll, Project-Database).

Methods and Material

The archaeobotanical sampling strategy is adjusted to the excavation methods and preservation conditions. The excavation area (Fig. 3) is divided into squares (artificial strata of 10 cm). 2008-2010, 46 dry soil samples of an average dry volume of 10 l were taken out of all horizontal and vertical stratified contexts: building features, cultural layers, and fortification-ditch. Besides, there is waterlogged material out of wells that are related to the buildings which is examined currently.

All samples were wet-sieved in the field (Fig. 4) with a column of DIN test sieves with mesh sizes 2, 1, 0.5, and 0.315 mm. In the Archaeobotanical Laboratory at the Goethe-University the charred plant remains were sorted and determined at 6-40x magnification. Due to absent or unavailable identification literature on the research area it was very important to upgrade the reference collection with steppe species by sampling in the field and ordering seeds from Botanical Gardens. Geobotanists of the Goethe-University further supported the knowledge about this natural area with vegetation assessments.

Results

Among charcoal, twigs, buds, budscapes, vegetative and generative plant remains, the 46 samples revealed 1100 charred seeds and fruits. Many objects are fragmented and/or deformed due to carbonization. However, 155 objects could be identified to species, 576 remains to genus level.

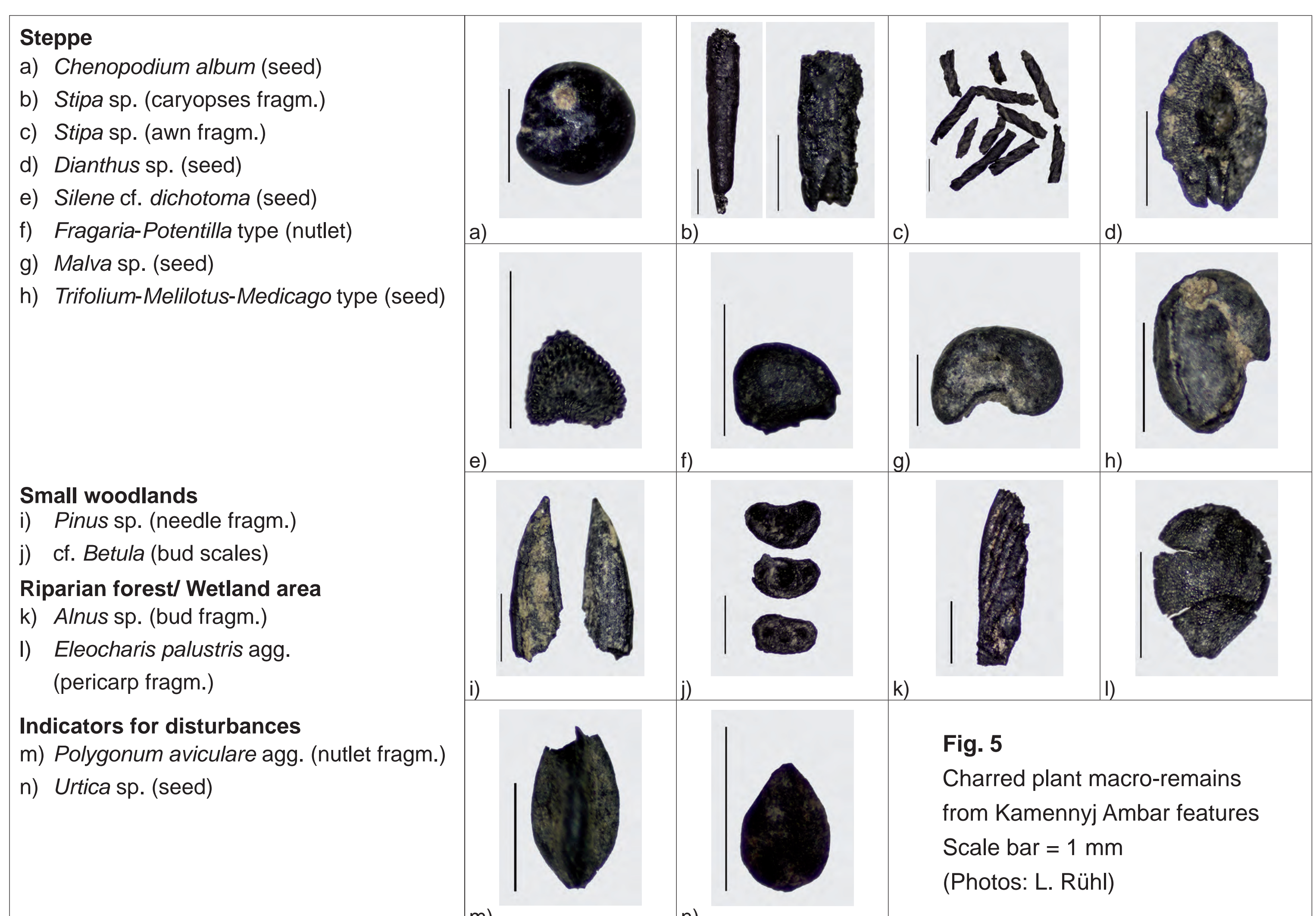
The results of off-site palynological investigations (Stobbe & Kalis 2012) show a grass-steppe with a high amount of *Artemisia* and *Chenopodiaceae*. This is supported by the dominance of *Chenopodiaceae*, *Fabaceae*, and *Stipa* sp. in the macro-remains spectrum.

The Bronze Age plant macro-remains represent different habitats (Fig. 5): the feathergrass-steppe is represented by *Stipa* sp., *Dianthus* sp., *Fragaria-Potentilla* type, *Silene* sp., and *Malva* sp. Small woodlands are documented by *Pinus* sp. and *Betula* sp.

Alnus sp., *Salix* sp., *Eleocharis palustris* agg. and *Lycopus* sp. refer to riparian forests and wetland areas. Indicators for disturbances are *Polygonum aviculare* agg. and *Urtica* sp.

So far, no remains of cultivated plants were found in the Kamennyj Ambar settlement. There is no evidence for agriculture at this site in the Bronze Age.

Thus, the next step will be the investigation of the role of gathered plants and of further ways of plant use.



References & Acknowledgements

B.K. Hanks & R. Doonan (2009). From Scale to Practice: A New Agenda for the Study of Early Metallurgy on the Eurasian Steppe. *J. World Prehist* 22: 329-356.

R. Krause et al. (2010). Befestigte Siedlungen der bronzzeitlichen Sintašta-Kultur im Transural, Westsibirien (Russische Föderation). *Eurasia Antiqua* 16: 97-129.

A. Stobbe & A. J. Kalis (2012). Archaeobotanical investigations in the Trans-Urals (Siberia) – the vegetation history. *LAC 2012*, Extended abstract.

Special thanks to the DFG which is funding the project 'Environment, Culture and Society of the Southern Urals in the Bronze Age: A Multidisciplinary Investigation in the Karagajly-Ayat Microregion, Russia' since 2008.