



Workshop 1

(Prague, 30/Sep - 01/Oct 2019)

ENVIRONMENTAL AND ARCHAEOLOGICAL PROSPECTION BY CORING AND MAGNETIC PROSPECTION IN THE PREHISTORIC LANDSCAPE OF PUSTA REKA (LESKOVAC, SERBIA)

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Topic 3 (Challenging survey environments and/or data)



Aim & Objectives

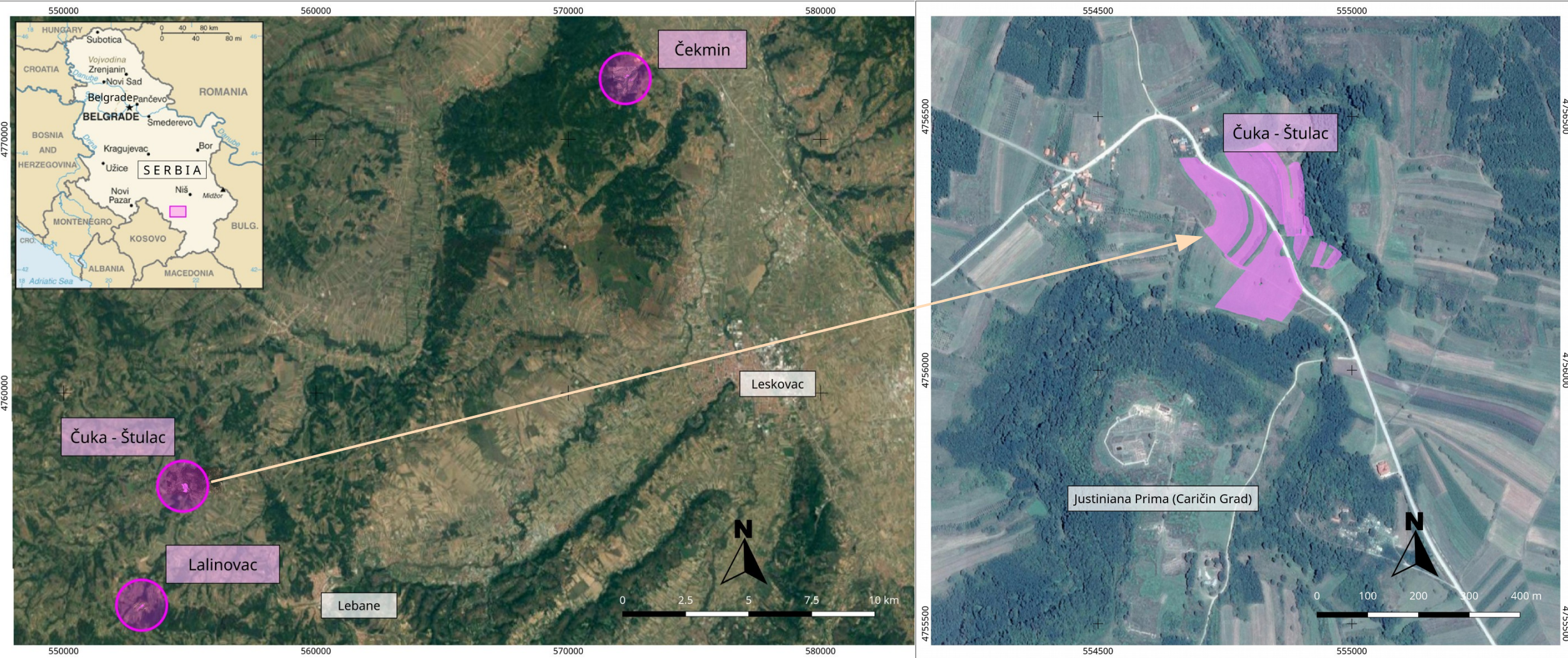
1. An Austrian-Serbian cooperation has been initiated to investigate the Leskovac Basin at the Southern Morava (Serbia) that will focus on the identification of potential early farming communities in the region.
2. Additional analyses of the later prehistoric sites, dating to the Copper and Bronze Ages, seek to provide an insight into the long-term landscape use by prehistoric communities in the area.
3. The first systematic survey campaign of the new Pusta Reka Project in 2017 provided new data regarding the prehistory in the region and a first insight into the landscape and the environmental conditions.



Campaigns of 2017 and 2018

1. Intensive and extensive archaeological surveys
2. Magnetic prospection on selected sites
3. Coring in areas of interest (derived from archaeological and geophysical data)
4. Targeted archaeological excavations

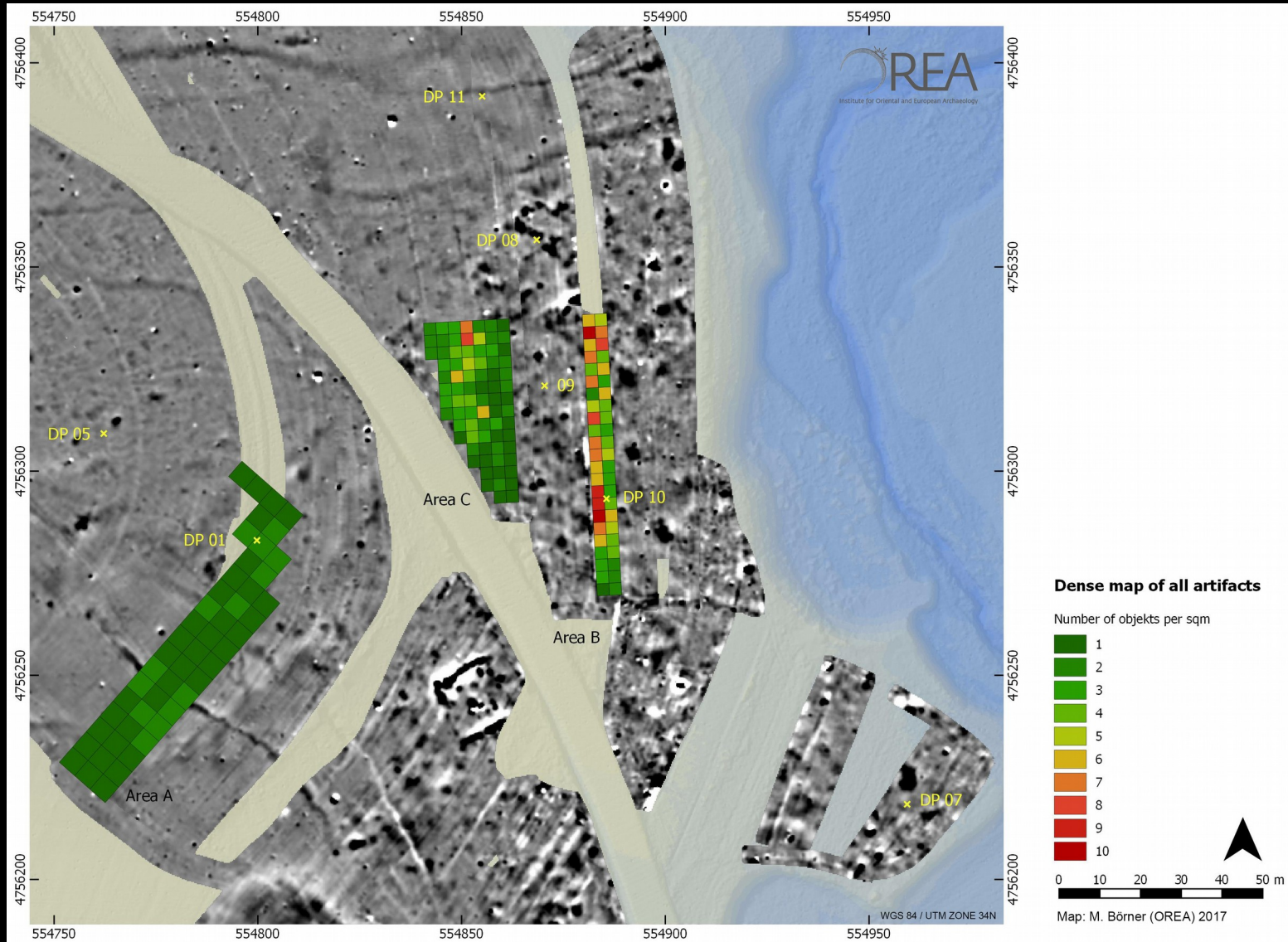
Prehistoric site of Čuka - Location



Prehistoric site of Čuka – Surface finds

Archaeological surveys:

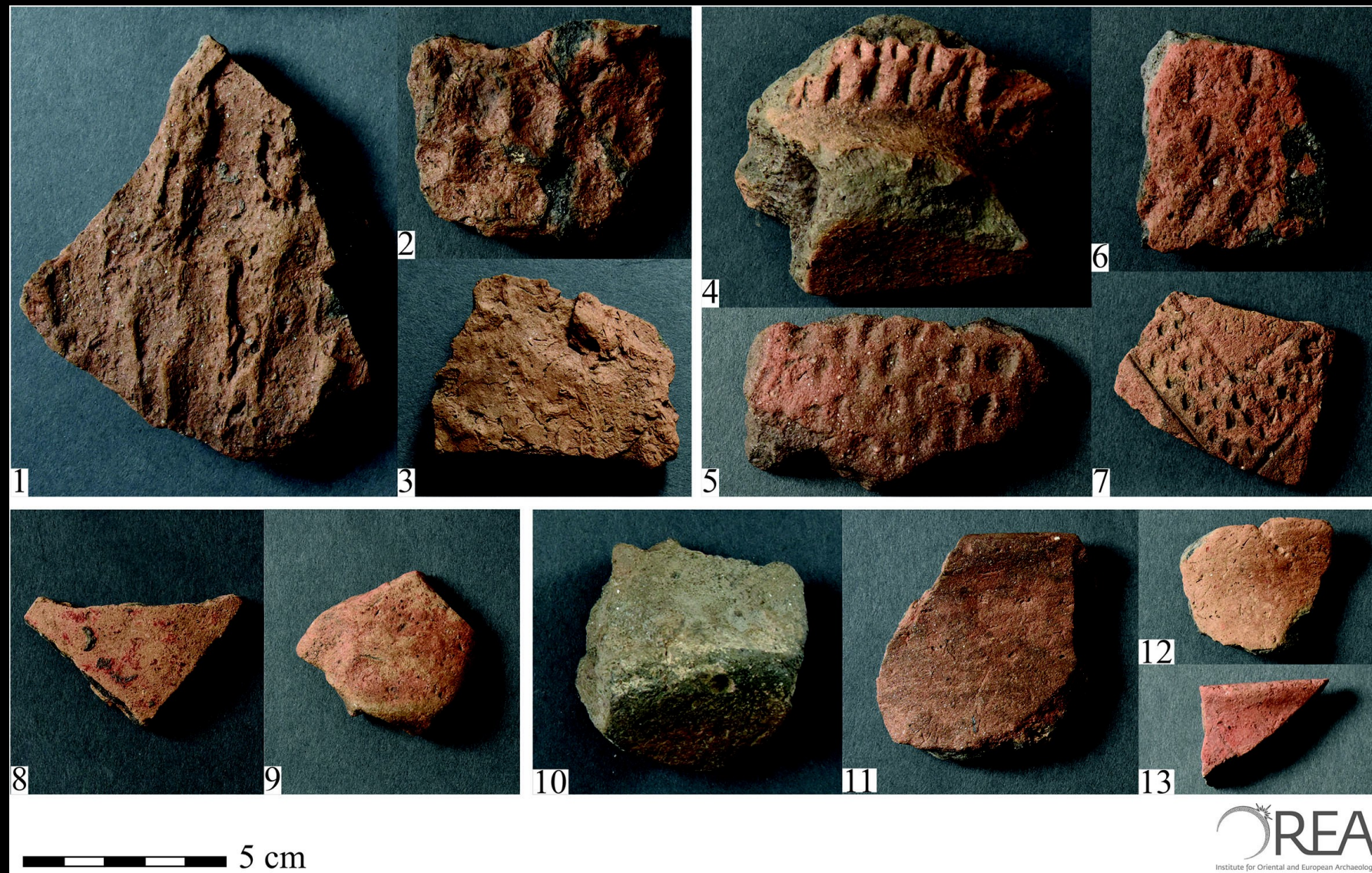
1. Site of diachronic use: Finds of Early and Middle Neolithic period (Starčevo), Bronze Age, Iron Age, Byzantine period
2. Lithic finds of Palaeolithic origin





Prehistoric site of Čuka – Surface finds

Selected pottery fragments of Starčevo horizon collected in the areas A-C



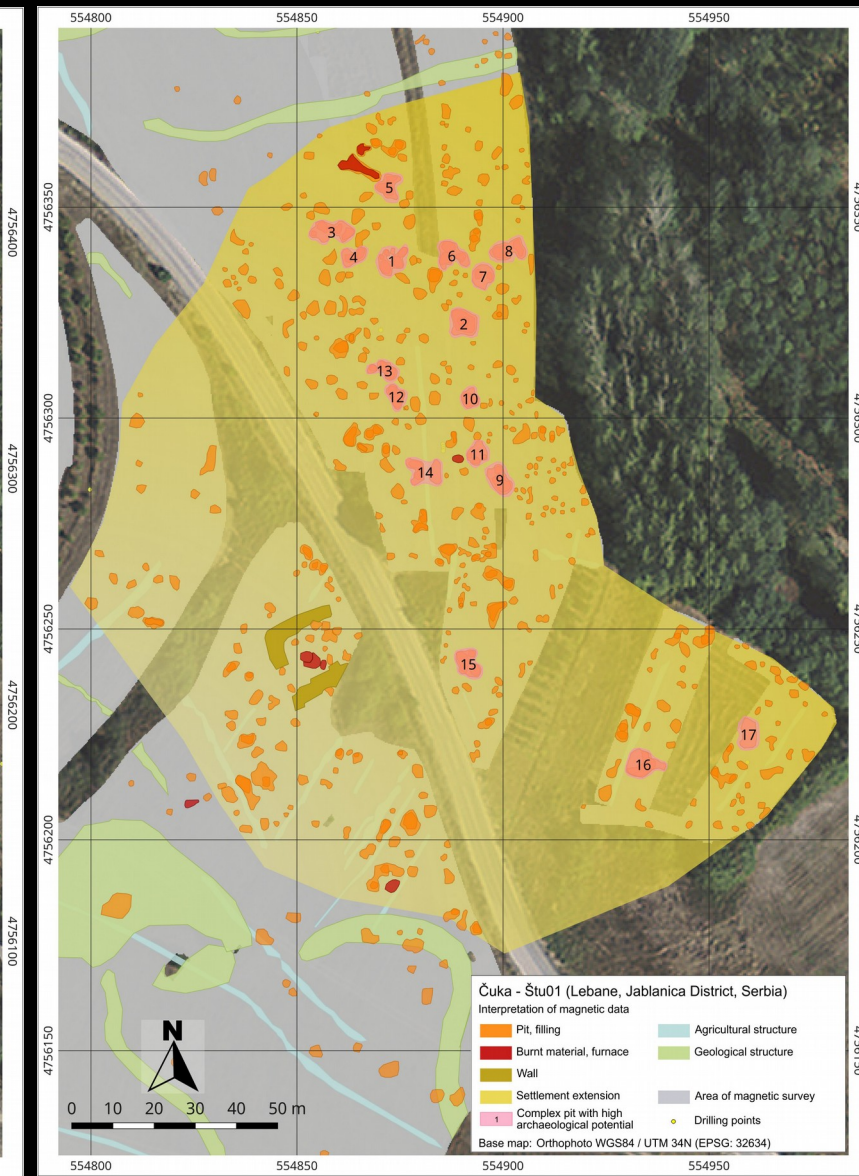
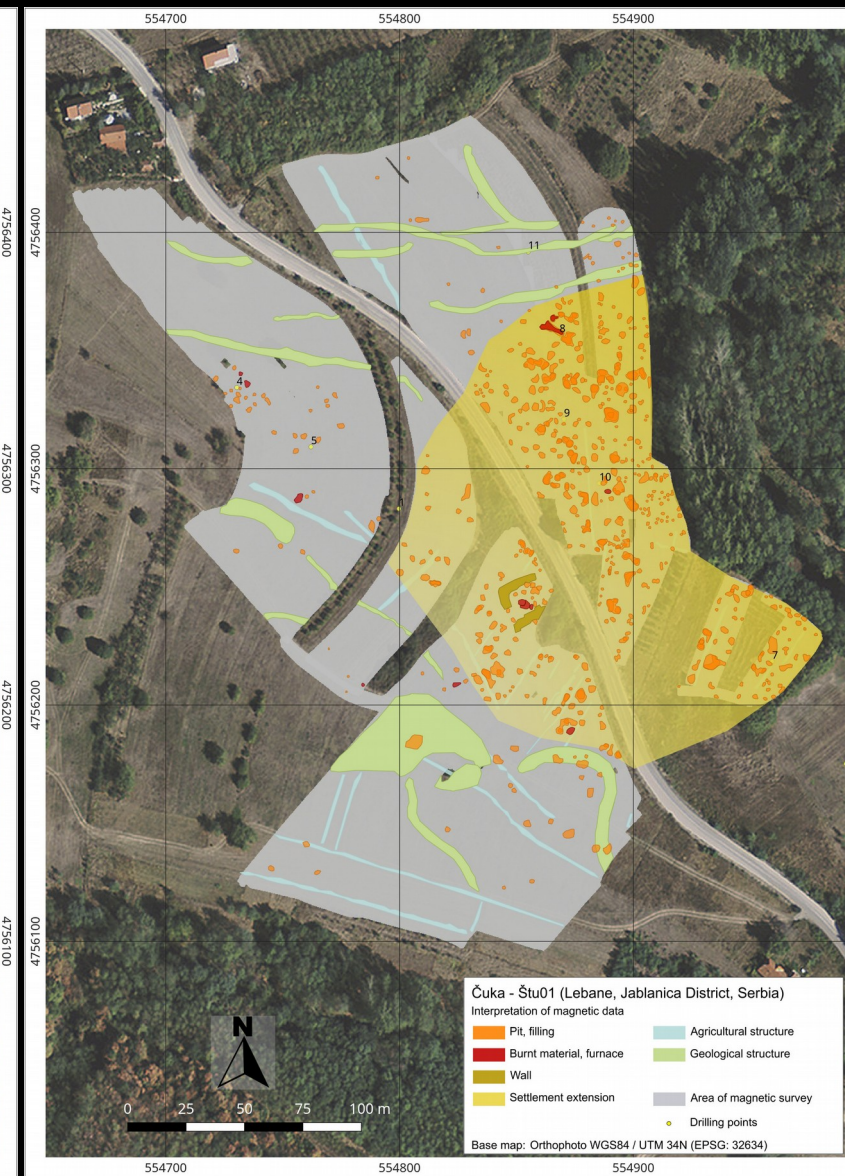
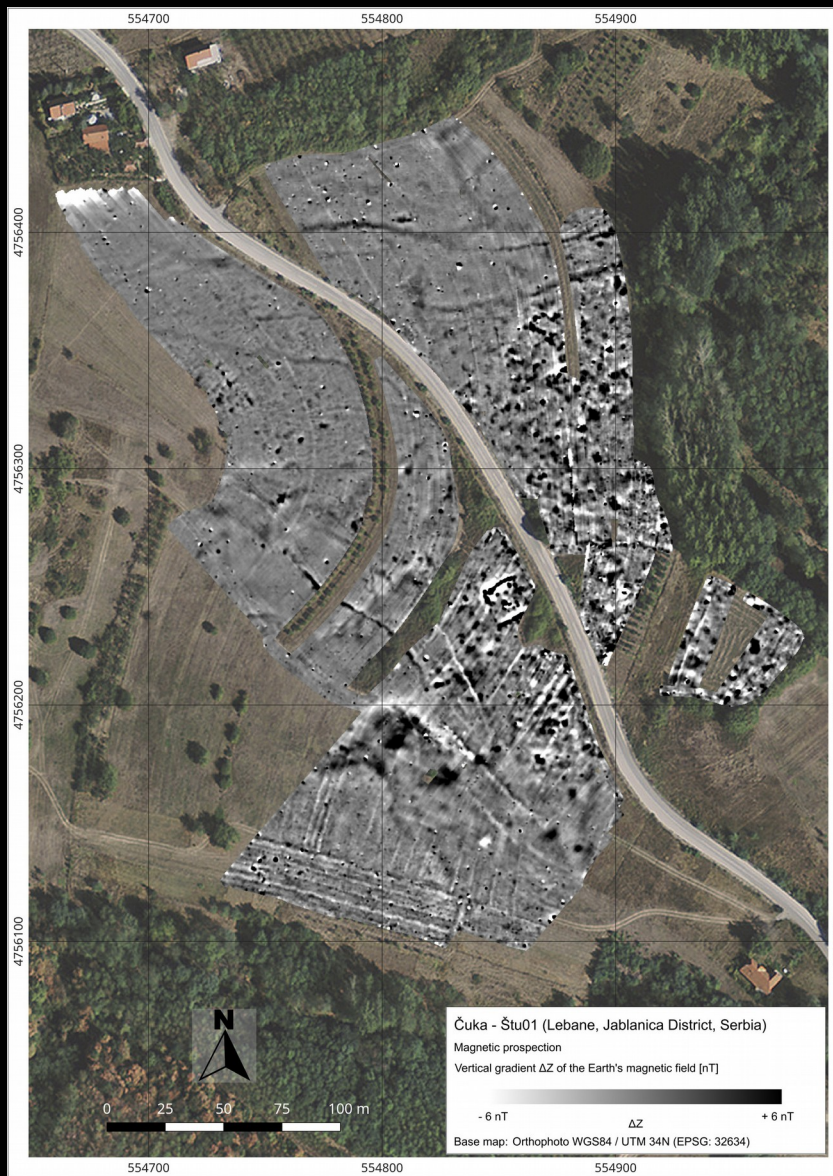
Prehistoric site of Čuka -Magnetic prospection

Magnetic prospection
with multiprobe array
LEA MAX with 7
Förster Fluxgate
gradiometres FEREX
CON 650





Prehistoric site of Čuka -Magnetic prospection

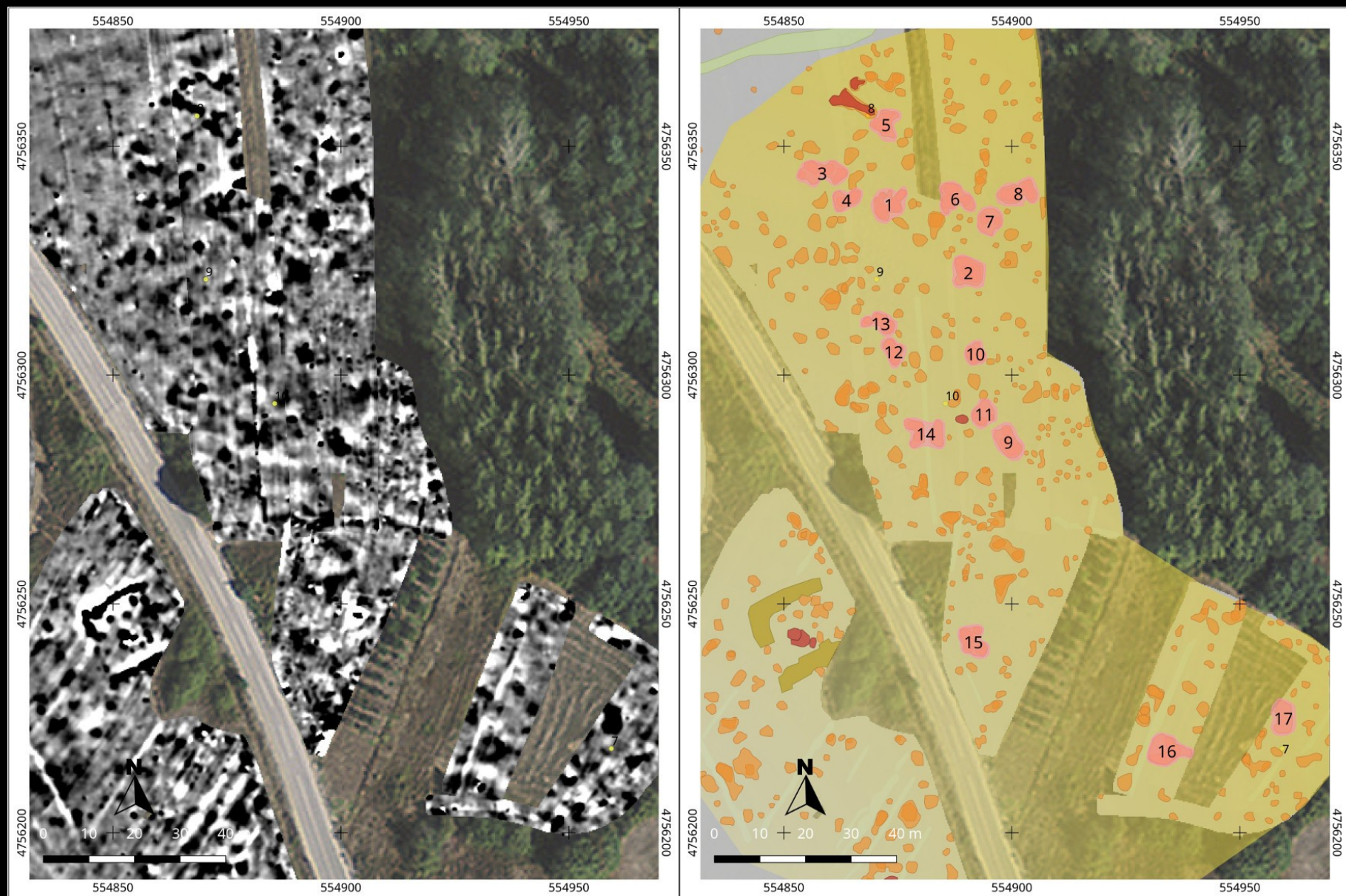




Prehistoric site of Čuka – Magnetic prospection

Classification of pit-like structures

Anomalies with circular or rectangular shape and amplitudes of >6 nT were classified as potential Neolithic structures

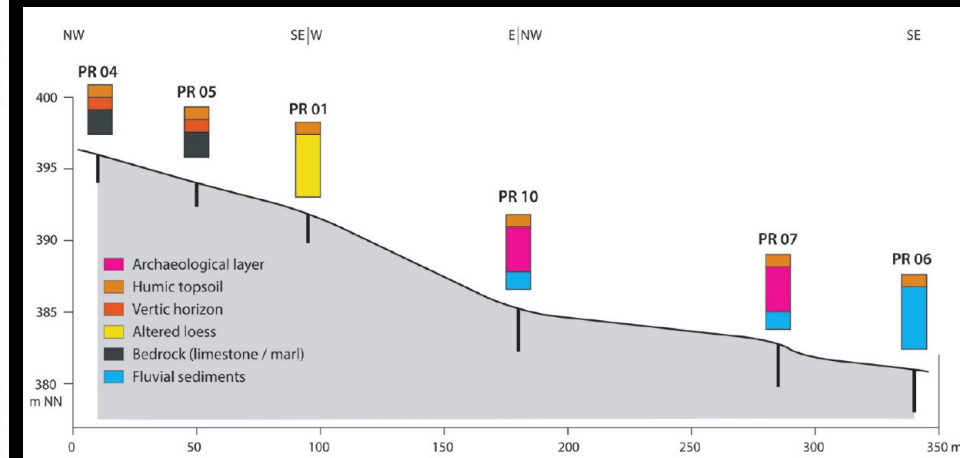


Prehistoric site of Čuka - Corings

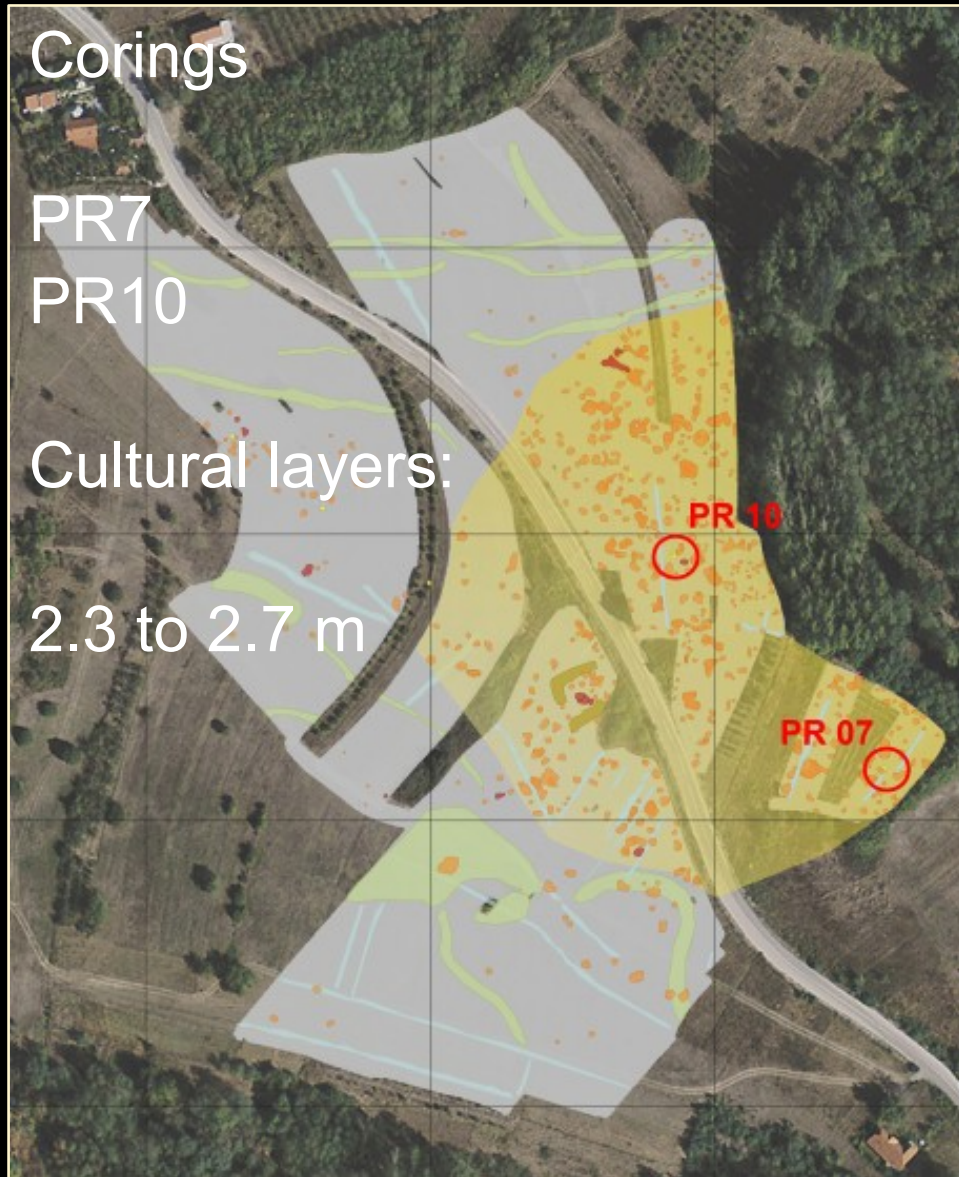
Corings

20 corings with an open tube or closed plastic tubes (diameter 5 cm) with electric vibracoring device

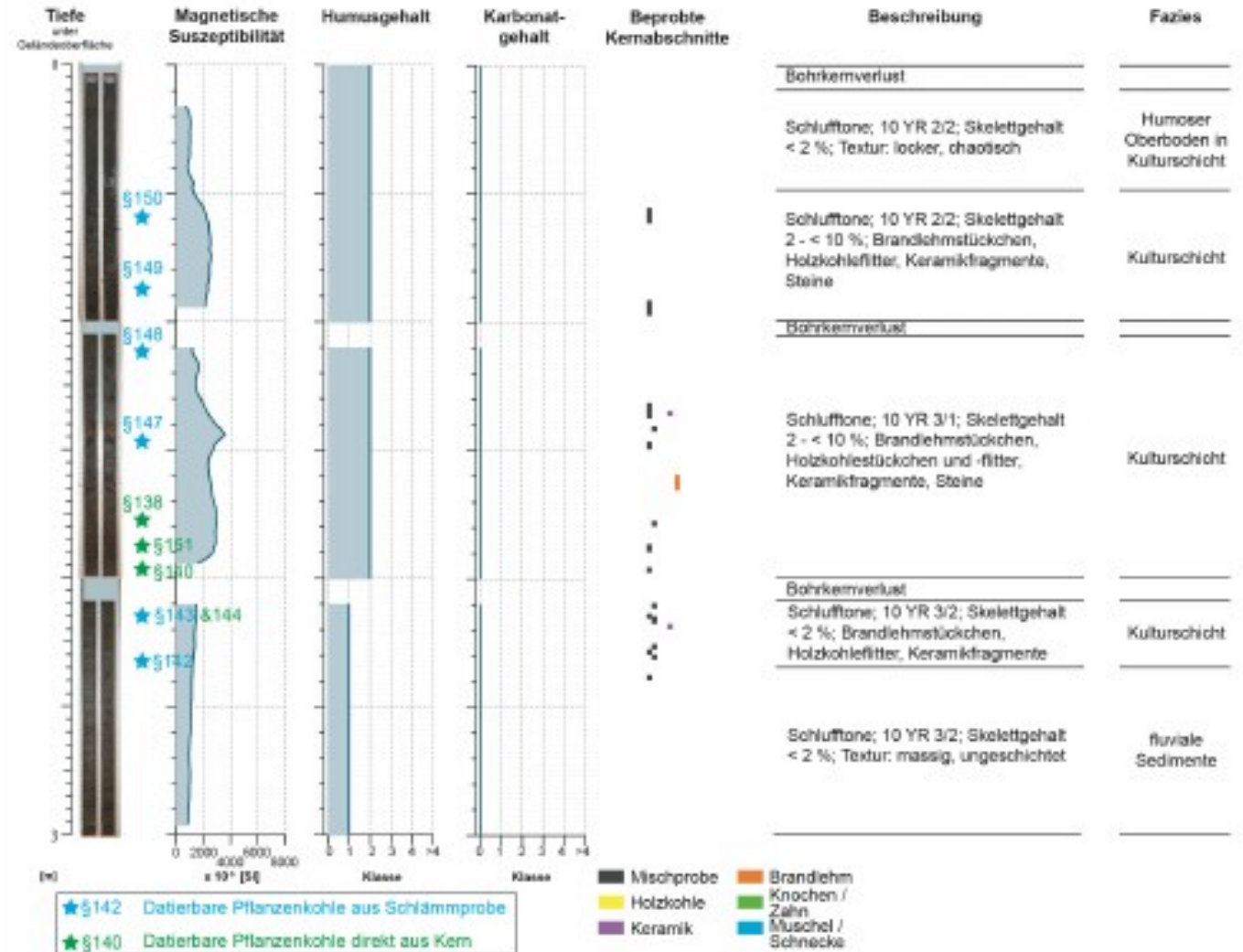
Magnetic susceptibility measurements:
Bartington MS3 Magnetic Susceptibility Meter with
Bartington MS2C Core Logging Sensor



Prehistoric site of Čuka - Corings



Bohrung PR 10





Prehistoric site of Čuka – Excavations 2018-2019

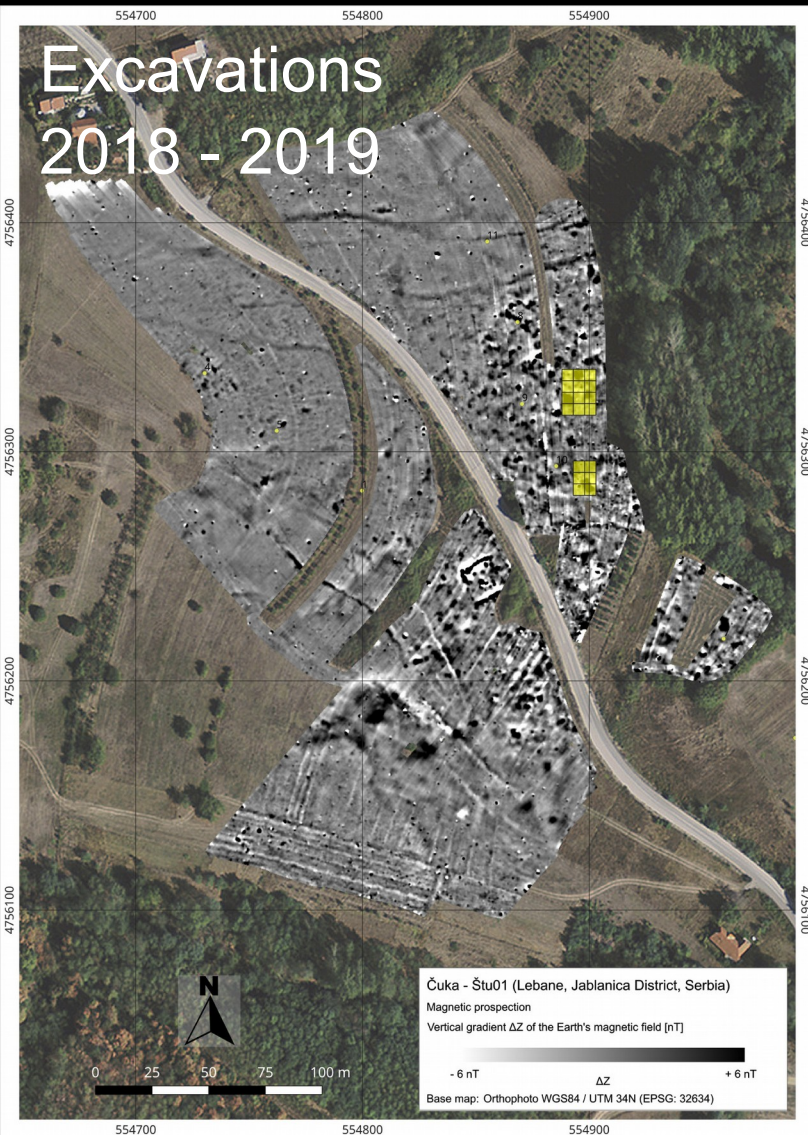


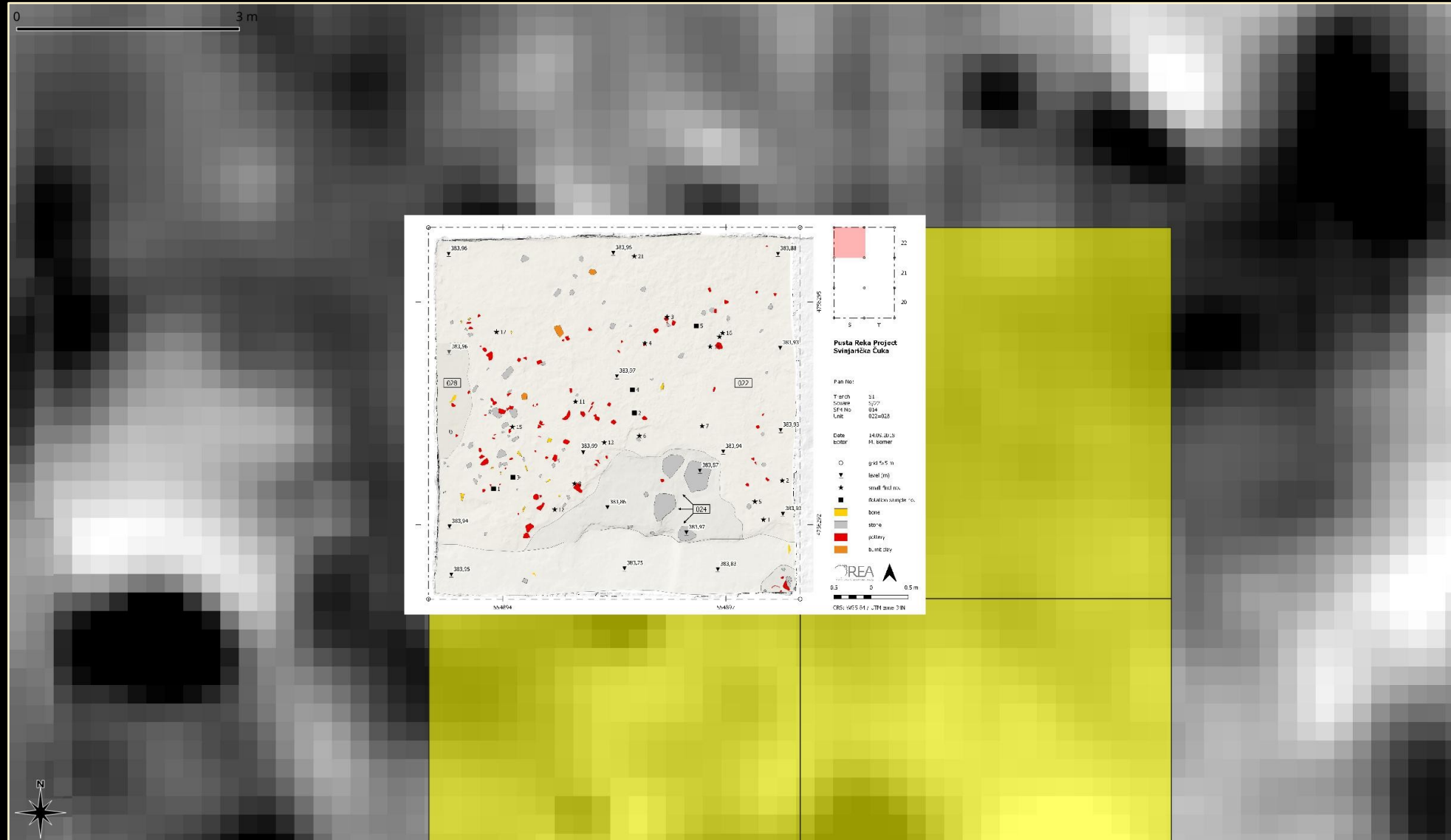
photo: M. Börner/OREA and O. Mladenović, Belgrade

Prehistoric site of Čuka – Excavations 2018-2019

Excavations
2018 – 2019

0 to 1.5 m:
Complex mixed
layers with
Neolithic and
Bronze Age
finds

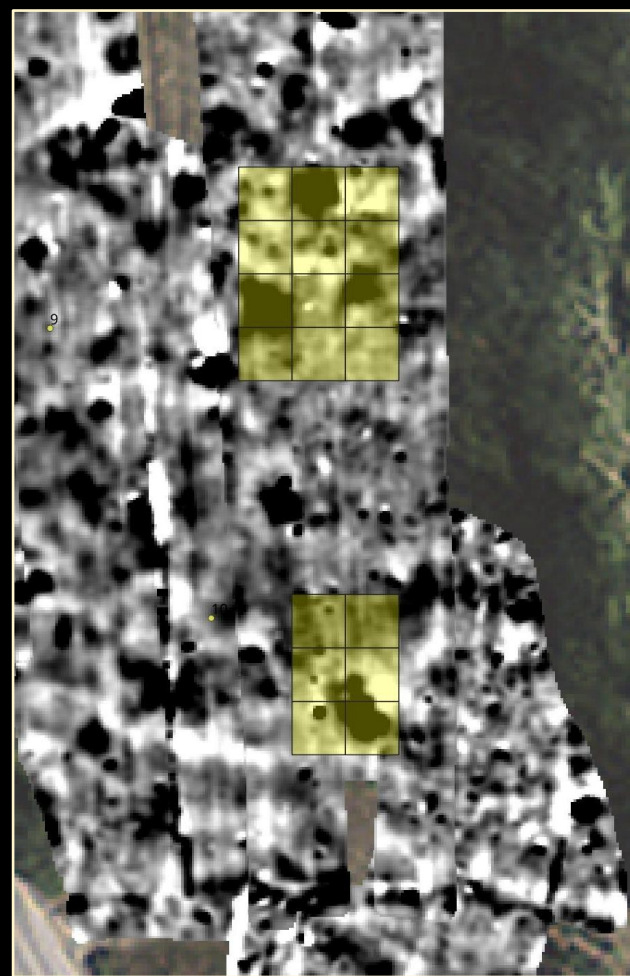
High magnetic
amplitudes
reflect shallow
mixed layers



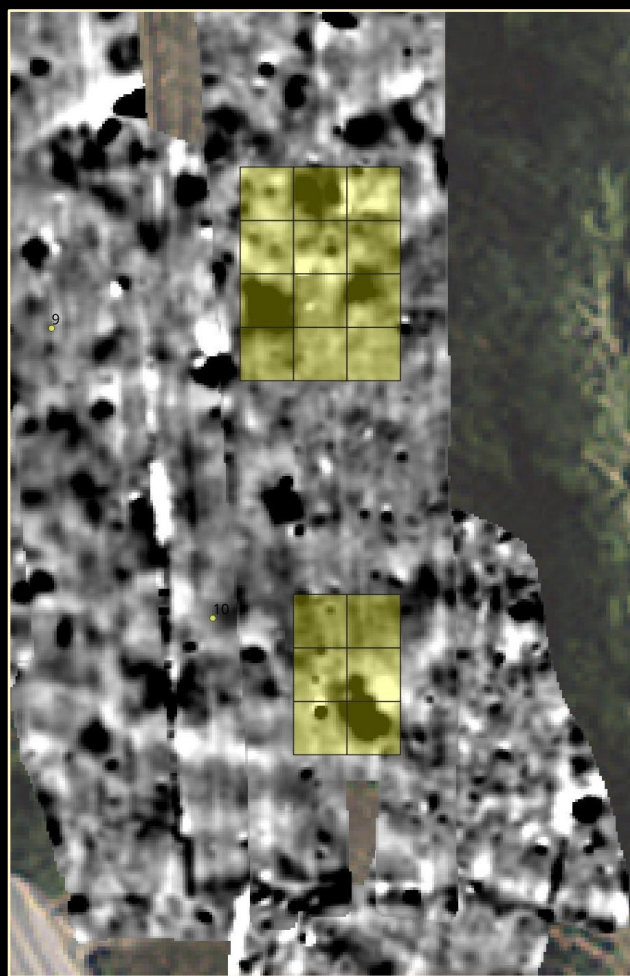


Prehistoric site of Čuka - Reinterpretation

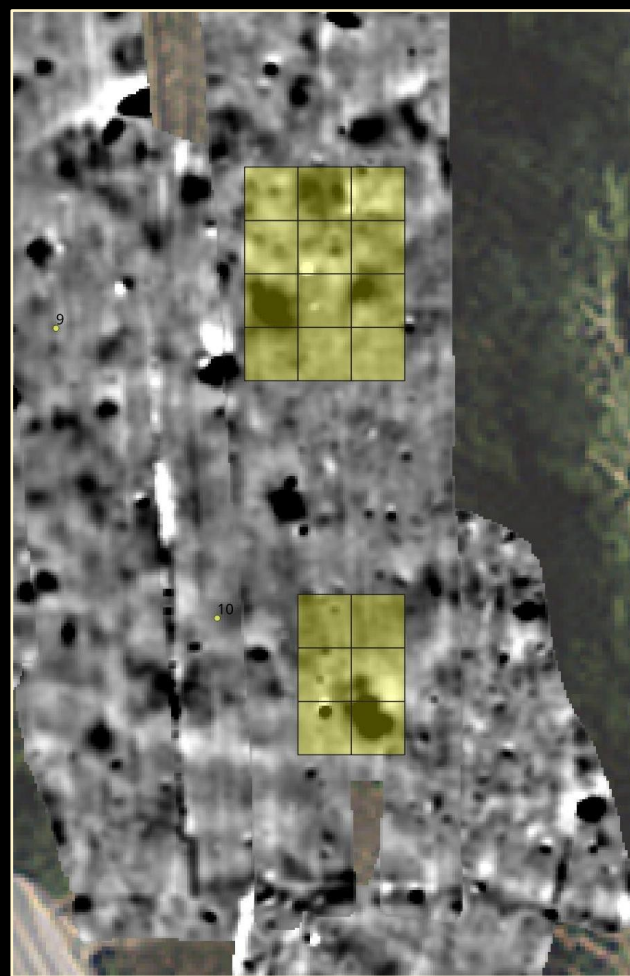
Reinterpretation of magnetic data



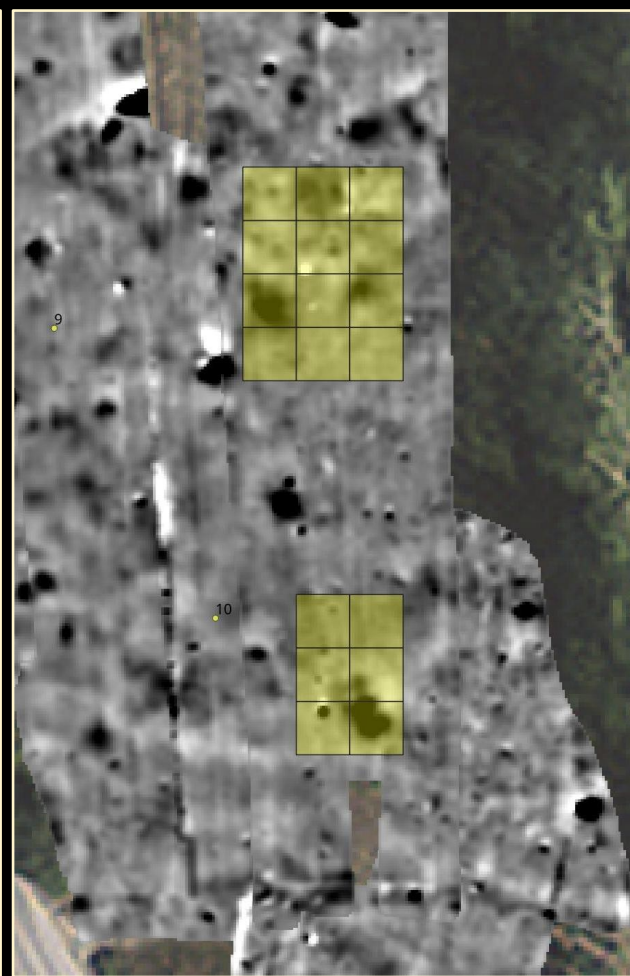
± 4.5 nT



± 6 nT



± 9 nT



± 12 nT



Prehistoric site of Čuka - Reinterpretation

Re-interpretation
of magnetic data

Zones of medium magnetic
amplitudes (+2 to +6 nT) with
superposition of circular,
oval and rectangular structures
are more likely to reflect the
Neolithic layers

Čuka - Štu01 (Lebane, Jablanica District, Serbia)
Interpretation of magnetic data, version 07/2019

Pit, filling	Agricultural structure
Burnt material, furnace	Geological structure
Wall	Area of magnetic survey
Settlement extension	Drilling points
Complex pit with high archaeological potential	Deep pit with high probability of neolithic origin

Base map: Orthophoto WGS84 / UTM 34N (EPSG: 32634)





Conclusions

- 1) Surveys on diachronic sites require the combination of methodological approaches by all means.
- 2) Combination of geophysical prospection and coring is useful for the planning of targeted archaeological excavations.
- 3) Qualitative interpretation (feature-based) should be complemented by quantitative observations (sus, conductivity from samples and corings).
- 4) Commonly used imaginations of features (pits) should always be questioned and validated by use of complementary methods (corings, excavations, further geophysical methods).



Acknowledgements

Project partners

OREA – Institute for Oriental and European Archaeology, Austrian Academy of Science, Vienna – Prof. Dr. Barbara Horejs

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National Museum in Leskovac, Serbia - Vladimir Stevanović

Geophysical fieldwork: Wioleta Hypiak, Nikolaas Noorda

Reference: Horejs, B., Bulatović, A., Meyer, C., Milić, B., Schneider, S., Schlöffel, M. and Stevanović, V. (2018): Prehistoric Landscapes of the Pusta Reka Region (Leskovac). New investigations along the Southern Morava River. In: Journal of Serbian Archaeological Society 34, 23–51.