



## Project Gallery

# Multi-faceted analyses of Poland's Bronze and Early Iron Age hoards

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Bronze and Early Iron Age hoards in Poland are the focus of a multi-faceted study combining archival research with laboratory analyses and landscape studies. The diverse dataset is expected to reveal new insights into the phenomenon of metal deposition.

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## Hoard studies to the present day

Most of Poland's Bronze and Early Iron Age hoards were discovered in the nineteenth and early twentieth centuries, and their find locations and contexts are rarely known. It was uncommon at the time to collect potsherds and less visually attractive items, while any samples and organic remains were not retained at all. The recovered metal items were dispersed among many collections, and some undocumented and uncatalogued finds went missing during the Second World War (Blajer 2001). The twenty-first century saw an intensification in investigations conducted by amateur metal detectorists, resulting in a significant increase in the number of new finds. Polish legal regulations allow for such investigations if permission is obtained from the local heritage authorities and the collected artefacts are handed to a museum. Despite instances of successful cooperation between amateurs and archaeologists (e.g. Blajer *et al.* 2022: 14–28), illegal investigations remained a problem (Maciejewski 2018: 279–86).

Despite some slightly earlier work (the Rosko Hoard, Maciejewski 2019), it was not until the second decade of the twenty-first century that several new projects aimed at obtaining more data on Bronze and Early Iron Age hoards were launched. These studies have encompassed both the long-known and the newly discovered deposits (Rzaska & Walenta 2017; Baron *et al.* 2019; Dziegielewski *et al.* 2019; Michalak & Orlicka-Jasnoch 2019; Michalak & Przechrta 2020; Kaczmarek *et al.* 2021; Blajer *et al.* 2022; Gackowski *et al.* 2022; Maciejewski *et al.* *in press*; Figure 1). While typological classifications are still made, the examination of traces of production, use-wear and destruction patterns in copper-alloy items is significant. Morphometric analyses with the use of 3D scanning are also being conducted. Studies of organic remains found with metal artefacts, radiocarbon dating and gas chromatography–mass spectrometry analyses of metal and ceramic vessels containing the deposited

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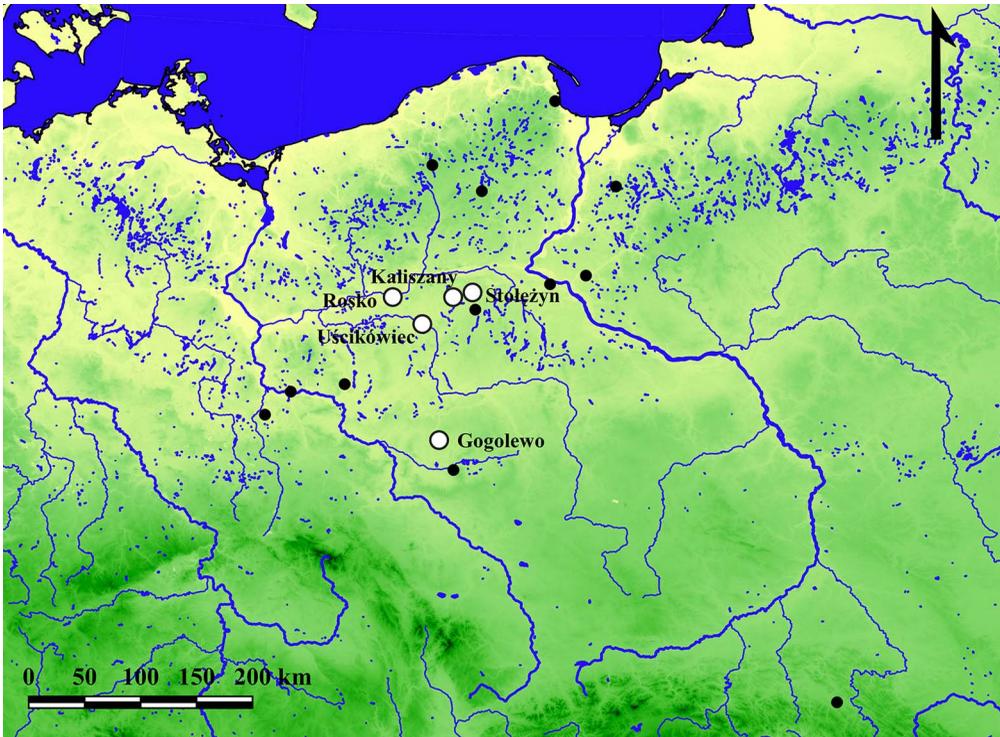


Figure 1. Location of hoards mentioned in the text: white dots represent locations of hoards examined in the *Biography of Hoards* project; black dots represent locations of hoards examined in other multi-faceted projects (figure by M. Maciejewski).

metal items are helping reveal more about the find contexts. Places of deposition and their relationship with the landscape are being investigated through geophysical surveys, excavation and geostatistical tools.

## Discussion is the way forward

Since 2018, scholarly meetings of the Mass Deposition Phenomenon Research Group in Poland have provided an excellent forum for the discussion of metal hoards, the scope of possible analyses and research methods and conclusions. Despite a break due to the pandemic, seven such meetings have been hosted by various museums and universities.

These Polish projects, although numerous, are not unique; other European countries are also conducting research in this way. Scholars from various research centres seek new methods of analysing and interpreting deposits of metal items, and examples of such studies were presented at the 26th European Association of Archaeologists Virtual Annual Meeting in 2020. The deposition of metal items was a pan-European phenomenon yet remains extremely enigmatic as a cultural practice. Studies on this issue require a constant dialogue between researchers from different parts of the continent.

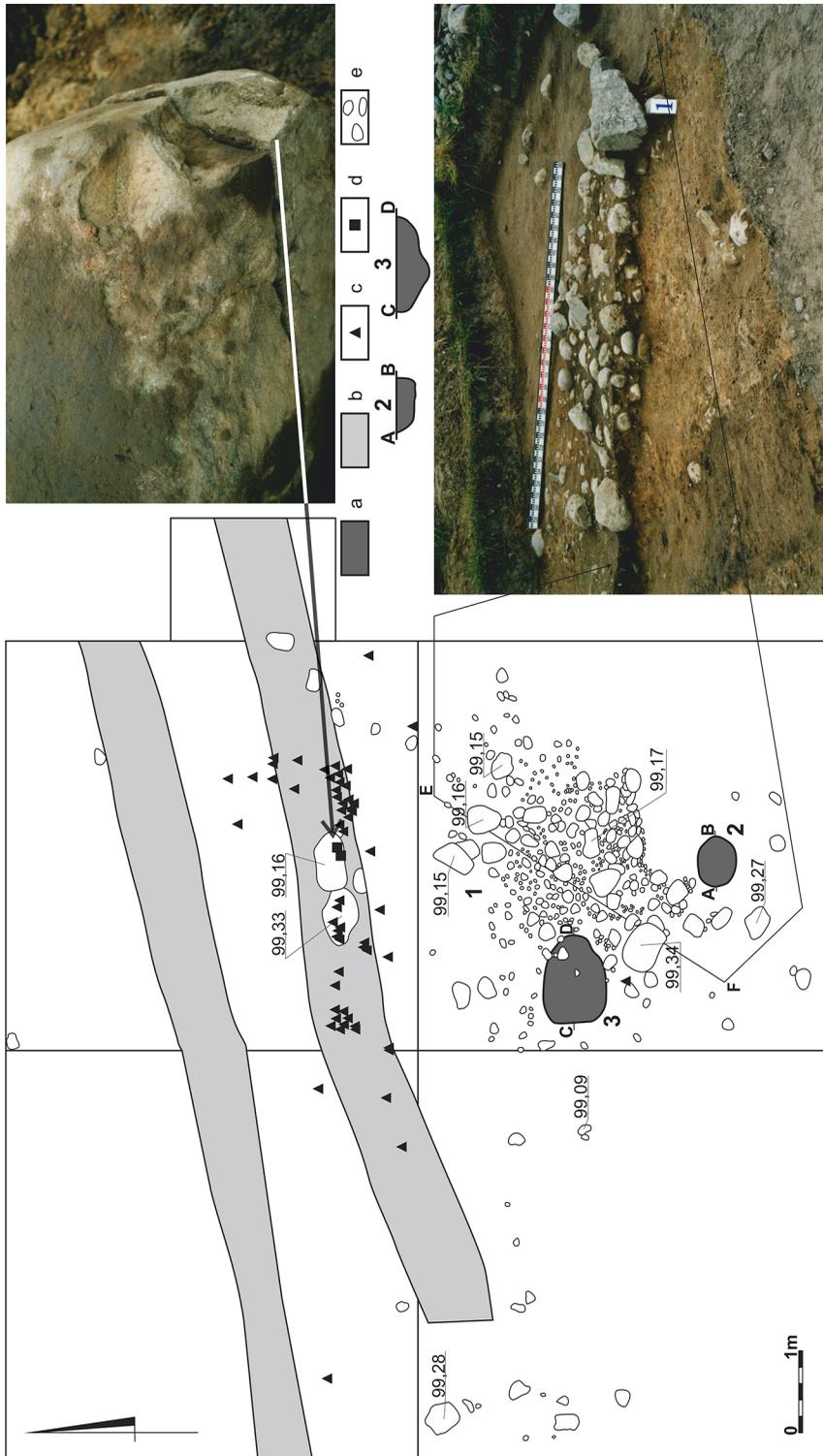


Figure 2. Remains of structure around the Rosko hoard: a) dark grey sand; b) bronze axes; c) contemporary ditches; d) bronze axes in situ; e) stones (figure by M. Maciejewski).

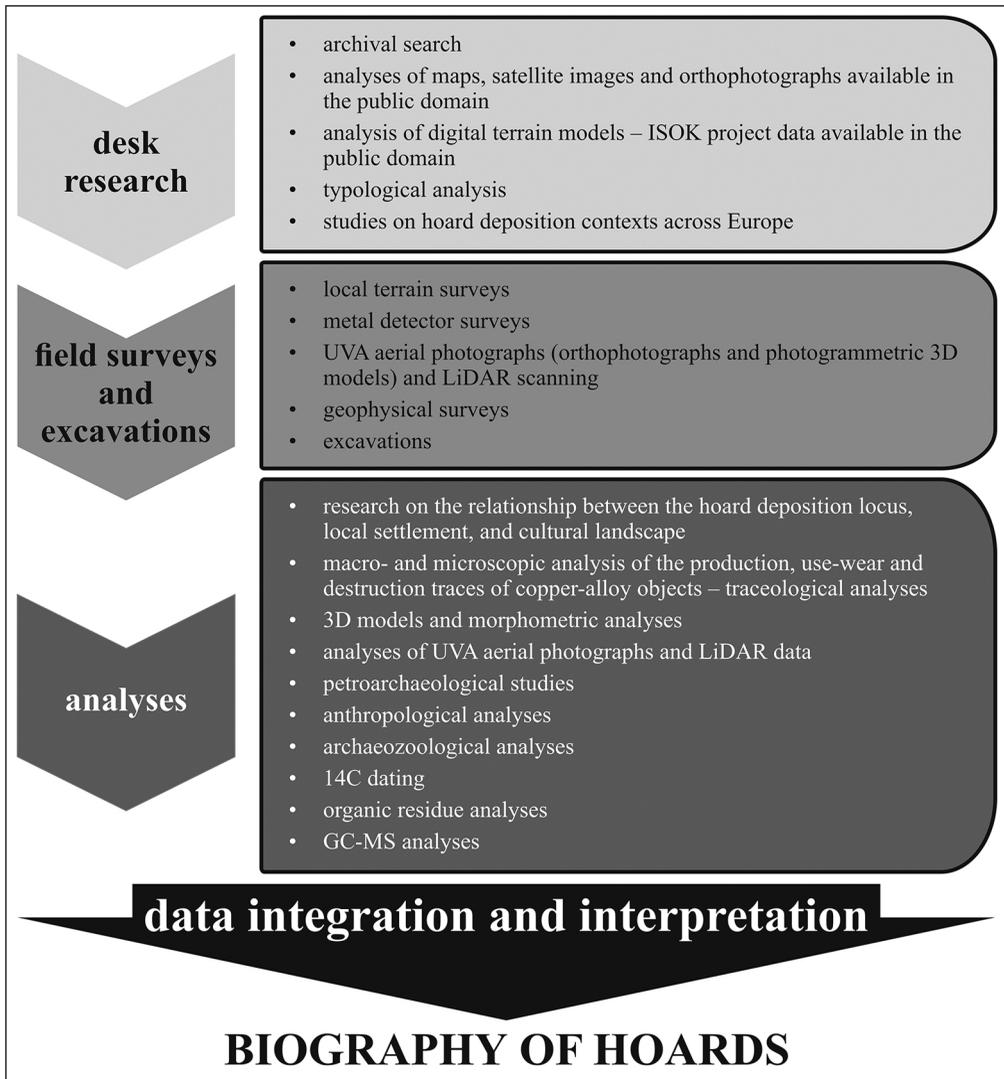


Figure 3. Workflow in the Biography of Hoards project (figure by M. Maciejewski).

## A biography of hoards: multi-faceted studies

The Rosko Hoard (north Greater Poland), which was discovered accidentally in 1985, plays a crucial role in the Biography of Hoards project (full title: A biography of Late Bronze and Early Iron Ages hoards. A multi-faceted analysis of metal objects related to monumental constructions in Poland). At the onset of the twenty-first century, Henryk Machajewski successfully located the deposition spot and launched excavations. The results, combined with witness accounts, showed that the artefacts had been deposited in a stonework and earthwork raised specifically for the purpose (Maciejewski 2019; Figure 2). Subsequent archival studies demonstrated that there might have been more hoards deposited in such



*Figure 4. Excavation of earth-and-stone structure around the Kaliszany hoard (archaeological site no. 3) (photograph by W. Krzywicka).*

monumental structures, which were clearly visible in the landscape and required a significant amount of labour. Following the launch of the Biography of Hoards project, three such places were identified in Greater Poland: Kaliszany and Stołęzyn in the north and Gogolewo in the south. A fourth hoard from Uścikówiec also in northern Greater Poland, which serves as a control sample, resembles them closely except for the fact that no contextual information on any surface features has been recorded. All these hoards date to the Late Bronze Age.

The archival studies aim to identify equivalent hoards from monumental structures from other parts of Poland. Library searches will also verify if any other European regions have yielded similar structures connected to the deposition of goods (e.g. a deposit from Plestin in Mecklenburg, northern Germany, is in many respects similar to that from Rosko, see Sprockhoff 1956: 51).

Work continues to identify the exact location of the Stołęzyn, Uścikówiec and Gogolewo hoards and to characterise potential surface structures at these sites. This involves examining archival maps, analysing airborne laser scanning data and aerial photos available in the public domain, creating point clouds with UVA lidar scanning, making and analysing new aerial photos, and conducting metal detector and geophysical surveys. Excavation of one of the sites may also be possible.

In Kaliszany, excavations and geophysical surveys are underway within the well-defined stonework and earthwork in which the hoard was discovered. The first season covered 25 per cent of the structure, revealing an elaborate stone setting and a layer containing broken



Figure 5. Pottery (A, C), animal bones (B), a human skull (C, D), and a flint tool (D) excavated from underneath the stone layer in Kaliszany (archaeological site no. 3) (photograph by Biography of Hoards project excavation team; figure by M. Maciejewski).

pottery vessels and human and faunal remains (Figures 4 & 5). These exciting finds allow further anthropological, archaeozoological, radiocarbon and organic residue analyses.

Traceological studies of copper-alloy artefacts are also part of the project, and might prove particularly telling in the case of the Rosko Hoard, which consists mainly of typologically similar axes. The axes will undergo morphometric analyses with 3D scanning to determine how many casting moulds were used in their manufacture (Figure 3).

In the case of Rosko, Kaliszany, Stołęzyn and Uścikówiec, studies on the relationship between the hoard's place of deposition and the surrounding cultural landscape have been undertaken previously. We will examine the situation of Gogolewo assemblage in the same manner (Figure 3). The fundamental research question of the project is whether the stone and earth structure at Rosko is a unique feature or is part of a local (north Greater Poland), regional (the Oder Urnfield Culture or Urnfield Cultures) or European tradition. Collecting a wide range of diverse data for the hoards mentioned above may also demonstrate what similarities and differences between finds can reveal about the phenomenon of metal object deposition.

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